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USSR: Science & Technology Policy

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917A0192A Moscow IZVESTIYA (Union edition) in Russian 12 Aug 91 p 2

[Interview with Deputy Chairman of the USSR State Committee for Science and Technologies Vladimir Viktorovich Yezhkov by IZVESTIYA science commentator B. Konovalov; date and place not given: "Isolation Is Equivalent to Suicide. A Conversation With Deputy Chairman of the USSR State Committee for Science and Technology V. Yezhkov"]

[Text] [Konovalov] Vladimir Viktorovich, you are responsible for international ties in the state committee and in your official capacity know what is happening in the world. What trends are now most characteristic of the development of world science and technology?

[Yezhkov] Everyone is seeking prospects in science and technology and is linking with their achievements the future of their countries on the world market of tomorrow and the day after tomorrow. In Europe, America, and Southeast Asia the process of forming a unified economic space is taking place intensively. But at the same time as this a unified world scientific and technical space is forming. The branched network of multinational corporations, the existence of a sufficient quantity of idle production capacities, and the extremely high level of competition are having the result that scientific and technical innovations rapidly win economic markets. That, on which decades were spent earlier, now takes years. And whoever has exceeded the world level immediately derives owing to this an economic advantage no longer within a separate company, sector, or country, but within an entire vast region and even the entire planet.

This has led to an increase of the attention of the governments and parliaments to all countries to the development of science and technology. An ever increasing portion of the gross national product is now being invested in the development of science and advanced technologies. And whoever does not participate in this process is dooming himself to the role of scientific and technological colonies.

[Konovalov] Until recently in the area of science we also followed the trends of merging with the world community, and the quite powerful intellectual potential of our country was an attracting factor, in spite of the ideological differences. What is happening now?

[Yezhkov] Yes, the first agreements on scientific and technical cooperation began to appear about 30 years ago. And today their total number has already reached several hundred. This system of intergovernmental agreements supported our scientific and technical potential and had a fruitful influence on the building of confidence between countries. But the moment came when our state obligations were almost up in the air. The point is that specific financial assets were allocated only for scientific and technical cooperation with socialist countries. As for other partners, the mechanism was the following. The USSR State Committee for Science and Technology (GKNT), when an agreement of this sort, say, with France or the FRG had been prepared, collected from all ministries and departments their wishes and proposals. And if they were included in the agreement, the ministries and departments should have automatically backed them with material and financial resources and currency.

Now the situation has changed substantially. The organization of scientific and technical cooperation with a foreign partner does not require mandatory consultation with the USSR State Committee for Science and Technology, but the possibilities of the financial support of cooperation from the budget of ministries have decreased significantly.

[Konovalov] Thus, it only remains for us to declare ourselves bankrupts in this area. We have already canceled the vast joint work that was conducted with the socialist countries. For we had the Unified Comprehensive Program, a large number of joint projects, scientific production associations, and design bureaus. All this now remains memories....

[Yezhkov] It is not entirely that way. Not all ties have been broken. What to a significant degree was supported by an ideological basis and was not mutually advantageous economically has collapsed. Often projects and even scientific production associations were in their essence anti-economical. Cooperated deliveries of assemblies at times led to the increase of the cost of the final product on the Soviet domestic market. For example, if at the Ivanovo-Sofia Scientific Production Association they installed on machine tools a Bulgarian NC block, it alone cost more than an entire machine tool with a similar Soviet block.

Scientific and technical cooperation between us and the socialist countries was not of a commercial nature. We transferred our experience and knowledge free of charge. This was pure donorship. But "know-how," as we known, is valued very highly on the world market. And our scientific and technical investments in what was called the world socialist community are very impressive.

The "bankruptcy" of interstate scientific and technical relations also did not occur. In accordance with a decision of the leadership of the USSR State Committee for Science and Technology the Fund of International Scientific and Technical Projects was formed. It is, true, made up of rubles. But often there is no need for currency. We should simply support financially the research in our country, which is being conducted in accordance with international projects that are connected with our agreements in the area of scientific and technical cooperation. Within the framework of this

fund the support of a large number of programs, including priority state programs, is being carried out.

[Konovalov] What lessons, all the same, have we learned from past experience?

[Yezhkov] Now we begin to carry out scientific and technical cooperation, wherever this is possible, on a commercial basis that is mutually advantageous for the parties. There are already a large number of examples of when on the basis of Soviet achievements enterprises for their sale on the world and domestic markets are being formed abroad, moreover, this is even happening in the most developed countries. For example, the technology of the extracellular growing of protein, which was developed in the laboratory of Academician A.S. Spirin in Pushchino, is now being sold in the United States.

The deideologization of scientific and technical cooperation is also taking place. Moreover, this process is of a bilateral nature. Whereas, for example, earlier the European Community did not want to allow us to participate directly in its programs, now the situation is changing. Now, for example, the Soviet Union has been invited to participate in the European ecology program. And it is not a matter of any privileges and sponsorship, no, we are making our own contribution to the research, but for this we are receiving the legal opportunity to use 100 percent of the overall results of the project participants. On this basis the USSR is already participating in five projects of the European "Eureka" scientific and technical program.

[Konovalov] But in recent times one has also had occasion to hear the opinions that in the event of a change of the present political course the West may sever all ties with us and we will find ourselves "back where we started"....

[Yezhkov] It must be frankly said that whatever the future political course is, isolation from the forming world scientific and technological space will doom the country to economic backwardness and gradual degradation.

But, of course, in order to cooperate with strong partners, one must oneself also be strong. In our country 19 state scientific and technical programs have now been formulated, 1,500 important projects have been selected on a competitive basis. These are the main roads of the development of domestic science and technology.

Many of our research programs blend fundamentally with the efforts of the world community. The results of cognition here are important for all countries of the world. But inasmuch as science is becoming more and more expensive, associations of efforts in this area are more and more advantageous.

And if we do not find the money for the international maintenance of such programs and the exchange of scientists now, this will turn in the future into enormous expenditures—the miser pays twice.

[Konovalov] But, apparently, when the centrifugal forces in our country are growing, is the preservation of the integration of domestic science important to no less an extent?

[Yezhkov] Yes, against the background of the concentration of science in neighboring Europe, disintegration may emerge in our country. And, apparently, it is necessary to use their experience in order to avoid this. And they pay a scientist considerable money just for the fact that he has agreed to work for some time in the laboratory of another country. All conditions begin equal, the projects, in which several countries are participating, receive priority financing and support. In our country it would be possible to do this for the projects, in which several republics are participating.

[Konovalov] I am afraid that our resourceful people will begin simply to add to projects their acquaintances from the republics. Unfortunately, 70 years of "condescension" toward the republic academies of sciences formed at many of them "second-rate science." It is not competitive even at the domestic level....

[Yezhkov] I do not entirely agree with you, although in reality the scientific and technical level in our republics is now very uneven. But, I repeat: One must not reinvent the wheel. Let us use world experience. There are the methods of objective expert evaluations, the allocation of grants for strong, talented scientists and specialists. If they are given encouragement and undergo priority development in the republics, powerful collectives will also form precisely around them. While a unified scientific and technological space in our vast country and the formation of a market economy will quickly ensure the flourishing of genuine creators. Today it is clear to any sensible person that integration is more advantageous that disintegration, while self-isolation is equivalent to suicide.

Kamenev Interview on Proposed Dubna International Center

917A0193A Moscow ROSSIYSKAYA GAZETA in Russian 7 Aug 91 p 1

[Interview with Deputy Chairman of the RSFSR Council of Ministers Aleksandr Fedorovich Kamenev by Yevgeniy Panov; date and place not given: "Dubna Will Not Be a Silicon Valley. It May Become Something Unprecedented"; first paragraph is ROSSIYSKAYA GAZETA introduction]

[Text] Deputy Chairman of the RSFSR Council of Ministers Aleksandr Kamenev, to whom we addressed the request to comment on the draft of the decree of the Presidium of the RSFSR Supreme Soviet on the establishment in the Moscow suburb of Dubna of an international center for the development of science and technologies, believes that.

[Kamenev] The organization of the center is one of the means of overcoming the crisis, in which basic science,

applied research, and the development and assimilation of new equipment have found themselves, says Aleksandr Fedorovich. In the area of scientific and technical progress it is even more serious than in the economy. There are no or almost not allocations for science and innovations. What is more, they, to all appearances, will decrease. The difficulties of conversion are being added to the lack of money. So that the question is grim: Scientific and design collectives should find their place under the market sun, otherwise....

[Panov] Otherwise will they begin to break up, while will scientists begin to seek a place under the foreign sun? According to a forecast, which was recently published in ARGUMENTY I FAKTY, 100,000-150,000 specialists of flourishing age and an additional 20,000-30,000 specialists with a reputation, whose loss is most painful, will leave the country annually.

[Kamenev] Yes, this is a very painful process. We have been unable to create for creative people conditions comparable to western conditions. They are leaving, and no patriotism, as we see, is stopping them. The intellectual potential of the country is decreasing. The consequences may be irreversible.

Thus, there are two threats: the breakup of highly professional scientific, research, and design collectives, which were formed over decades, and the brain drain. How is one to combat this? For example, in Dubna?

Everyone knows that the Joint Institute for Nuclear Research is located there. But so are six of the largest defense enterprises, about which far from everyone knows. These enterprises are beginning to be successfully converted, with great effectiveness—scientific and technical, economic, and functional. Take the Raduga Aircraft Design Bureau (in reality this is a most powerful association). It is assimilating the production of 1,000-kilowatt windmill generating plants, light two-passenger airplanes and eight- to 10-passenger business airplanes, and high-precision satellite television receiving systems. There is the excellent idea of launching geostationary satellites with the aid of mother aircraft, for example, the military TU-160, which at an altitude of 18 km accelerates a launch vehicle with one or several satellites with a total weight that is fivefold greater than is feasible in case of launching from earth.... Plus hothouses, concrete mixers, microwave ovens—such is the range of Raduga. The enterprise is already splitting up and diversifying, collectives of different types and small firms are being formed.

And there are, I repeat, six corporations of such a class in Dubna. Plus, of course, the institute for nuclear research, at which the intellectual elite has been gathered. A special mentality, a colossal potential! How is one to preserve it? Make it closed—for the country and for the world. Liberate it, that is, bring Dubna—as an integrity, as an economically free, integrated facility—to the world market. The city is entirely suited for international contacts. It has a developed infrastructure: transportation, hotels. An airport. A satellite communications station.

Therefore, the Dubna City Soviet of People's Deputies in June addressed to B.N. Yeltsin the proposal to turn Dubna into a technopolis with the status of a free enterprise zone. The deputies, the representatives of executive power, and the executives of the enterprises are acting in concert, they are all unanimous that Dubna is national property, which it is necessary to save at once, everyone is willing to work vigorously.

On the instructions of B.N. Yeltsin a "team" made up of specialists of different types was formed. They held a series of meetings in the Council of Ministers and went to Dubna. It turned out that it is possible to develop there 11 major original directions. As a result the draft of the decree on the establishment in the city of the international center appeared.

The center should ensure: the development of basic science, applied research, and development; the introduction of new, economically clean technologies, machines, and equipment; the formulation and implementation of republic scientific and technical programs; the attraction of foreign capital, technologies, and management know-how; the development of international cooperation in the area of economics, education, and culture. As well as—I emphasize this particularly—the rapid solution of the socioeconomic problems of the region.

According to the draft the Presidium of the RSFSR Supreme Soviet should give the Council of Ministers the assignment to draft within three months a statute on the economic and legal status of the center.

[Panov] A free economic zone is not spoken about in the draft. Thus, will Dubna not acquire such a status?

[Kamenev] No. A free economic zone pursues the goal of attracting foreign capital for the industrial development of certain directions or others. Here for the most part there is a scientific and technical sphere of interests. Moreover, every enterprise of Dubna may also become an independent subject of the world market. The possibilities for this are splendid, and given the investment of assets good exportable industries will result. Although it is clear that the problem of attracting capital also exists here.

[Panov] Are there already potential investors? In what do they intend to invest capital?

[Kamenev] Yes, pioneer businessmen are already working. Their interest lies in the science-intensive intellectualized sphere, which trained specialists are concentrated.

[Panov] In the draft there is also no mention of a technopolis. What in such a case will the Dubna International Center be? With what is it possible to compare it if only approximately?

[Kamenev] Technopolises are traditionally regarded as forges of new technologies, which form around universities. An example is Silicon Valley with the heart at Stanford. In Dubna there is no university, but this is not the main thing. The main thing is that not only new technologies, prototypes, and the like, but also mass- and series-produced items will be produced here—at the same six large defense plants. The Dubna Center will be an original combination of innovation structures with a powerful industrial zone. With what can one compare it? I do not know. Perhaps, this is something unprecedented. If it is possible to develop here the creative entrepreneurial spirit, which distinguishes technopolises, the center with time may develop into something entirely unique.

European Experience Seen as Key to New USSR Science Policy

917A0213A Moscow RADIKAL in Russian No 29, 31 Jul 91 p 3

[Interview with Candidate of Physical Mathematical Sciences Vladimir Viktorovich Yezhkov, deputy chairman of the USSR State Committee for Science and Technology, and Doctor of Juridical Sciences Professor Anatoliy Borisovich Vengerov, head of the department of the legal support of scientific and technical progress of the USSR State Committee for Science and Technology, by Aleksandr Spiridonov; date and place not given: "Does Europe Carry No Weight With Us?"—first two paragraphs are RADIKAL introduction]

[Text] The most frightening predictions of the fate of our science and the most passionate appeals to save it had already been heard. It was worse with business. Nevertheless, if you assess the situation soberly, the civilized existence of science is far less problematic than that of, say, the domestic automotive industry. The potential and level in many areas are such that, if the corresponding laws, rules work.... That is why it is very important today to know about them.

This year a group of Soviet scientists and specialists in the organization of science worked at the 12th and 13th general directorates of the Commission of the European Communities. These directorates deal precisely with scientific research within the communities and with the use of the results. Aleksandr Spiridonov talks with participants in the work—Candidate of Physical Mathematical Sciences Vladimir Yezhkov, deputy chairman of the USSR State Committee for Science and Technology, and Doctor of Juridical Sciences Professor Anatoliy Vengerov, head of the department of the legal support of scientific and technical progress of this committee.

[Spiridonov] Vladimir Viktorovich, the first question is for you. Why precisely Europe? Did this trip rank with others, so to speak, for the breadth of interests or was there some special interest here?

[Yezhkov] First, the breadth of interests, which is supplemented on such trips, for our scientists and specialists, who have been deprived of the normal opportunities of civilized society, is in itself a benefit. But here I would place a completely separate emphasis. The study of European procedures is of particular interest for our country.

Believe me, we will be convinced more than one more time of the similarity of many problems of the organization of scientific research and in technological development of the European Community with those that have already appeared or will appear in the most immediate future in our country—with the transition to a market economy and with the delimitation of powers between the Union and the republics. There are here both the problem of the organization of a unified economic and legal space and the difficult task, which is vitally important for us, of using scientific and technical achievements.

Nine languages operate in the 12 countries of the European Communities. The working languages of common programs and projects are determined voluntarily—when concluding contracts.... What else ought I explain here? In our present situation ignore the European experience!

[Spiridonov] And what does it teach us? What first steps must be taken on the path to a civilized procedure in the organization of science?

[Yezhkov] I can assure you that we have very much to do. The obtained information is vast. In this conversation it would be a good idea to emphasize the most basic principles, on which the science and technology policy of the communities is based. And the first most important thing is that this policy is set down in a fundamental legal act. Anatoliy Borisovich, I think, will describe this better.

[Vengerov] In 1987 the Treaty of Rome was supplemented by a section that received the name of the Special European Act. It consists of 11 articles that are devoted to scientific research and technological development. The basic principles, by which all the participants in scientific and technical activity within the communities should be guided—in the determination of the priority directions, the evaluation of programs and projects, the organization of cooperation, the settlement of questions of financing, and so on—are set down in them.

In essence the Special European Act is a basic law of direction action. That is, a direct guide to action. No detailing acts are needed any more for its application. Analogs of such an act exist in the United States, France, Italy, Switzerland, and other countries. In our country the Law on State Science and Technology Policy, the draft of which was passed in the first reading, aspires to this role.

[Spiridonov] Anatoliy Borisovich, could you somehow show the nature of the act with a specific example?

[Vengerov] Let us take Article 130 F. It formulates the goals: to broaden and to raise to a new level the scientific and technological base of European industry and to promote the competitive ability of its products at the international level, to form common standards and norms, to eliminate legal and tax barriers, to develop the support of small and medium innovation enterprises, research centers, and universities, to support cooperation among the participants in scientific and technical activity, to use the possibilities of the common market, particularly by ensuring the access of scientists of all the countries to the contracts that are offered by each country.

[Spiridonov] Pardon me, Anatoliy Borisovich, but all this sounds somehow very general and declarative. Somehow all this is very in keeping with our "to ensure," "to raise," "to eliminate"....

[Vengerov] Yes, this is the normal language of law. The whole question is whether the goals have been chosen correctly and whether the norms supporting them are observed. I dare assure you that every worker of the directorates, when evaluating any project or program, will check them most scrupulously for conformity to all the points and norms of the act.

In Europe they are not afraid of such a declarative nature. In a competently formulated law generality merely makes a specific job easier. In the act every participant in scientific and technical activity can find a clear answer to any working question that arises for him. Cooperation among research centers, enterprises, and universities, the stimulation of the training of personnel, the organization of work on framework programs, relations with third countries, the contract system, the detailed study of financial questions for the support of each program.... There is not, I dare say, a single question of scientific and technical activity, which has not been set down in the corresponding article of the Special European Act.

[Spiridonov] In our country during the discussion of the draft of the similar Law on State Science and Technology Policy it was evident that many people, not understanding the essence of the matter, regarded it as another encroachment....

[Yezhkov] But the science and technology policy of the Commission of the European Communities is based directly on principles that ensure consolidation. For example, the aspiration for the equalization of the levels of scientific and technical development of each of the countries belonging to the community is next to the provisions that specify the way to the formation of a common market and competition. A rule is set down: The Commission of the European Communities provides 50 percent of the spending on specific programs, the corresponding countries provide 50 percent.

It is worth dwelling separately on the principle of complementarity. The Commission of the European Communities channels into scientific research approximately 3 percent of all the spending on science in the European Communities—about $2 billion. The principle of complementarity, which is set down in the same Article 130 F, signifies that the Commission of the European Communities organizes and supports only the research that can be more effective in a common framework.

[Spiridonov] But the principles of the equalization of the levels and complementarity can under certain circumstances come into conflict.

[Yezhkov] If such a thing does happen, as if safety mechanisms operate in the communities. There is, for example, the decision of the council of ministers of the European Communities on the coordination and determination of interests in the area of science and technology. The task of pulling the scientific and technological level of the less developed countries up to the common level is indicated in this act as one of the main ones.

[Vengerov] I would distinguish another principle that is also very topical for us: the elimination of the duplication of operations. The solution here is one that has been verified well—to combine the efforts of research groups from different countries.

Finally, the science and technology policy of the European Communities also adopted such a principle, which is also well known to us, as the concentration of resources on themes that are of vitally great importance for Europe.

[Spiridonov] And on what, for example, has European science been focused today?

[Yezhkov] In the second framework program for 1987-1991—that is, the program that specifies the basic goals—the following priorities are singled out: the quality of life, the creation of an information and communications society, the modernization of the industrial sector, the optimum use of biological resources, power engineering, science and technology for development, the use of resources of the sea, and a number of other scientific and technical directions.

The same principle of the concentration of resources on basic problems was also maintained in the third framework program for 1990-1994. There are three basic directions here, which include a number of specific research areas: the possibilities of technologies with an emphasis on information science, service lines, and new materials; further, the management of natural resources—environmental protection, the science of the sea, biotechnology, agricultural crops, biomedicine and health care, power engineering; the third branch is the management of intellectual resources.

[Spiridonov] In my opinion, in our present situation the experience of solving the sociopolitical problems, which

arise when implementing the science and technology policy of the Commission of the European Communities, can be particularly valuable. We have already spoken about the simple and efficient solution of the language problem....

[Vengerov] It is probably unnecessary to talk about the foundations of the democratic mechanism, which are natural for civilized Europe and which ensure the implementation of science and technology policy—the freedom of movement of scientific personnel from country to country, hiring under contracts, the mutual recognition of academic degrees and titles.... These are all rudiments.

But there is also a special political mechanism. The powers in the scientific and technical area are distributed among the European Parliament, the council of ministers, and the Commission of the European Communities. They specify, for example, the terms of the enlistment of third countries in research work. Incidentally, a number of countries can get involved in programs and projects, having paid a kind of duty in the amount of $5,000.

[Yezhkov] At present the European Communities have proclaimed a policy of advancing to the East. They intend to include the countries of Eastern Europe in the sphere of scientific and technical cooperation. The European Communities are also not closed to cooperation with the Soviet Union. But the development of the political situation in our country greatly affects their attitude toward us. The main thing that worries them is whether the USSR will remain a federative state or will disintegrate into many states.

I want in a few words to add to what Anatoliy Borisovich said with regard to the political mechanism of coordination, which operates in the European Communities. It is put into effect mainly in case of the formation of the budget and its approval in the European Parliament—there they specify the framework program and its cost. The council of ministers on the recommendation of the Commission of the European Communities approves the specific programs. The political decisions on programs are then implemented in the different countries with the participation in the projects of specific laboratories, universities, and enterprises, which are united, as a rule, into consortiums. That is, the Commission of the European Communities for the organization of work and the financing of a specific program should have three decisions of the European Parliament and the council of ministers—on the endorsement of the framework program and its financing, on the approval of the budget, and on the allocation of assets, a fund for the specific program.

[Spiridonov] Vladimir Viktorovich, I am certain that precisely the specific programs and projects, the procedures of their formulation and approval, and the possibilities of participating in them may particularly interest readers....

[Yezhkov] This, believe me, is a separate long discussion. Here there is so much of everything that is important that you would not say it briefly.

[Spiridonov] All right, we will look forward to such a discussion in the immediate future.

[Yezhkov] I agree. But today in conclusion I want to say the following. Far from everything is unclouded in the science and technology policy of the communities. In it there are many contradictions, which are being caused by the complex dynamics of the formation of the unified European economic, political, and legal space. At times, however absurd this may sound for us, there are not enough assets even for profitable projects, while the formulation of programs and projects due to the procedures of the coordination and making of decisions has a very long period. But these are all natural difficulties. Entirely surmountable ones. That is, under the conditions of civilized market relations both the great effectiveness of science and all the possibilities to coordinate the interests and efforts of different states in the scientific and technical sphere are being displayed clearly.

It is not by chance that when preparing the draft of the Law on State Science and Technology Policy the experience of the Commission of the European Communities was also taken into account to a significant extent.

Progress Report on S&T Policy Law

917A0198A Moscow RADIKAL in Russian No 28, 24 Jul 91 p 1

[Article under the rubric "A Fact for RADIKAL": "What Kind of Law We Still Need"]

[Text] On 6 July 1991 the USSR Supreme Soviet approved in the first reading the draft of the Law on State Science and Technology Policy.

After the report of V. Mikhaylov, first deputy chairman of the USSR State Committee for Science and Technology, and a kind of joint report of Academician N. Karlov, deputy chairman of the Committee of the USSR Supreme Soviet for Science and Technologies, a discussion of the draft law took place.

President of the All-Union Academy of Agricultural Sciences imeni V.I. Lenin A. Nikonov, who opened it, at first recalled that "we have fallen unimaginably behind in scientific and technical development" and "have 'missed' the third scientific and technical revolution." The deputy made an unusual suggestion—to introduce the indexing of the assets that are being allocated for scientific research. He cited here the experience of agrarian science, having said that "given the 6-7 kopecks per hectare of land being used, which the state allocated for agrarian science, you will not do anything."

Deputy V. Petropavlovskiy (chief of a department of the Pozitron Scientific Production Association, Leningrad)

defended the honor of our scientific and technical community, having declared that it "in principle could not have missed the third scientific and technical revolution" and that "the economy, which is not receptive to innovations, is to blame for everything." The two main features of our present state, in the words of the deputy, are a structural and a financial crisis. The former "requires of us the pursuit of a science and technology policy," the latter—"the passage of a law that governs its formulation and implementation."

N. Gritsenko, chairman of the Commission of the Council of the Union for Labor and Social Policy, came out in detail with many fundamental views of a general nature. For example, he proposed "also to think out a system of the establishment of state-public structures, particularly for the management of individual scientific and technical programs." The law, the deputy believes, should envisage without fail "serious scientific and technical propaganda and the increase of the level of scientific knowledge in the country." And he proposes to begin "with the state support of the development of a network of stations of young technicians, houses of science and technology, houses of inventors, technical exhibitions, museums, technical periodicals, movies, and others." The deputy cited as an example America, France, Japan, and other countries, where, in his words, "the alphabet begins with technical education: In our country they cite the word 'arbuz' [watermelon] as an example for the letter 'A,' while there they cite the word 'atom.'"

Of the 13 speakers only one—Deputy G. Novikov (chief of a sector of the Industrial Association of Radio Technological Equipment, Votkinsk)—spoke in favor of the passage of a different law, which he called simply "On Science Policy." He began with an acknowledgment: "I am very sad, but I cannot say anything good about the draft law that has been submitted for consideration." The deputy expressed the conviction of the inability to combine the concept of scientific and technical creativity and asked the question: "Why are we not talking about the next stage—about the development of such laws, for example, as the Law on State Scientific Medical Policy, the Law on State Scientific Philosophical Policy, or the Law on Scientific Geographic Policy and so on?"

As a result the draft of the decree on the draft of the law was adopted with one amendment of Chairman A. Lukyanov—not to indicate the date of the second reading.

Situation Worsening for Applied Science Organizations

917A0200A Moscow RADIKAL in Russian No 28, 24 Jul 91 p 7

[Article: "They Put in a Word for Applied Science"—first paragraph is RADIKAL introduction]

[Text] The USSR Scientific-Industrial Union, which has already managed to become quite well known, without yet having gotten out of its infancy, nevertheless was on the point of being reproached with one-sidedness—it, they say, is exclusively industrial, while it is of no use to science and scientists. The Scientific-Industrial Council proved that this is far from the case, having become the initiator of a conference on the problem of the protection of science, first of all applied science.

A "tug of war" between republics and even smaller regional formations is taking place in the country. The policy of the USSR Scientific-Industrial Union is fundamentally different: The task not to divide, but to unite is being posed. And to unite, first of all, on the basis of the community of ecological interests. The economy, industry, and science cannot shut themselves up within one even most developed region. Our salvation and the way out of the crisis, in which our economy is, lie only in unification and consolidation.

The difficult situation, in which the economy of our country is, cannot but affect the state of affairs in science. So-called applied (sectorial and intersectorial) science has now found itself, in our opinion, in a particularly grave situation. The material, technical, and financial capabilities of enterprises for the introduction of new technological processes and the assimilation of new types of products are decreasing significantly, this, in turn, is checking the growth of labor productivity and the quality of the products being turned out, other economic indicators are worsening. The effective demand for scientific and technical products is decreasing by leaps and bounds, the financing of operations, which are aimed at the solution of priority problems, of promising exploratory development, and of work on the creation of a scientific research, which are financed through state centralized sources, is being cut drastically, the possibilities of the financing and material and technical supply of the modernization of the material base of applied science are decreasing.

Under these conditions the interrelations of scientific organizations and plants, which are the manufacturers of new equipment and the users of new technologies, have been complicated substantially, inasmuch as at present there are no real economic levers that are capable of interesting enterprises in the production of new equipment, while market relations have not yet begun to work.

The USSR Law "On Taxes From Enterprises, Associations, and Organizations," which went into effect on 1 January 1991 and increased the deductions of scientific organizations for the budget by two- to threefold, aggravated even more the crisis situation in applied science. In conformity with the introduced system of the taxation of the profit scientific organizations have practically been deprived of the possibility and stimuli of not only the development, but also the maintenance of the accumulated scientific and technical potential.

The state of affairs in applied science is also being complicated by the growing flow from scientific organizations of a significant portion of the most promising

and enterprising specialists. Some are leaving for cooperatives and joint ventures, others are going abroad. The reasons are well known—poor, inadequate, to put it mildly, material supply, poor social protection.... At the same time precisely applied science is capable of ensuring real scientific and technical progress in the national economy, by implementing in practice the results of basic scientific development.

The hopes that the state will find assets for the special-purpose financing of applied science are slight. Even with allowance made for the decision of the USSR Cabinet of Ministers on the establishment of specialized funds for the assistance of sectorial science attached to the USSR State Committee for Science and Technology, ministries, and so on they are very illusory.

For finding a way out of the formed situation a conference of executives of a number of prominent scientific and scientific production organizations of the basic sectors of industry was held in Moscow on the initiative of the USSR Scientific-Industrial Council. The conference participants, who are worried about the state of affairs in applied science, decided to form a working group and with the enlistment of specialists to elaborate a set of measures, which are aimed at the preservation of the scientific and technical potential and the assurance of the continuity of the process of modernizing equipment and technology.

The decision was made to prepare a package of drafts of legislative and other standardized documents of various levels, which would envisage:

—the establishment of a special tax system, which stimulates the innovation activity of applied science in industry;

—the strengthening of the protection of the ownership by scientific organizations of the results of applied development;

—the specification of the status of scientific and scientific production associations, which envisages such a situation, when the withdrawal of pilot and pilot experimental plants from these associations would be economically disadvantageous for them, and so forth.

The work on the indicated documents is taking place in constant contact with other state and public organizations of the country, such as the USSR Union of Scientific and Engineering Societies, the State Committee for Science and Technologies, and others.

The working group is coordinating its activity with the staff of the USSR Supreme Soviet (A. Kovin), as well as the Committee of the USSR Supreme Soviet for Science and Technologies (V. Petropavlovskiy). The elaborated documents will be submitted through the USSR people's deputies, who belong to the scientific-industrial group, to the Supreme Soviet of the country. Then there will be discussion and the making of a decision.

Sobchak on Need To Reform Academic Science

917A0205A Moscow POISK in Russian No 22 (108), 24-30 May 91 p 3

[Report on speech by Professor Anatoliy Sobchak, chairman of the Leningrad City Soviet, at a conference of the Leningrad Union of Scientists, by POISK correspondent Arkadiy Sosnov with Yuriy Vinogradov of the Leningrad Department of the Archive of the USSR Academy of Sciences, under the rubric "What Is Science To Be Like?"; date not given: "The Truth Is Dearer Than Victory"—first paragraph is POISK introduction]

[Text] Historians still have to trace how the state system of the management of science formed in our country, in what cases it was effective owing to the massed investment of assets, and when and why it did harm to science or was used to do harm to mankind as well. Otherwise, in reforming the system of the organization of science, we will repeat our own mistakes!

From Romanticism to Analysis

Now, under the conditions of the universal deficit, the dangerous trend of curtailing scientific research, particularly basic scientific research, has emerged. On the other hand, trends and structures, which are parascientific, or else pseudoscientific, are arising under the guise of modernization and transformation.

To underestimate these processes means not to think about tomorrow, because education and science are the components of social development, which determine the future of the people. Even in the present chaos it is possible to achieve economic and political stabilization, but if we in the area of science and education make rash decisions, tomorrow we will again be thrown back.

Our times in general are distinguished by not an analytical, but an emotional approach to urgent problems. This is the national romanticism of some republic leaders, who hope to build a new state system exclusively by the exploitation of the national idea. It can already been clearly seen that in itself the national idea does not bring anything except unreasonable hatred and hostility toward "people speaking other languages." As a most vivid example I will cite long-suffering Georgia. I met with its current president during the investigation of the Tbilisi events and tried to understand why the person, who has a bearing on science and is an intellectual by original and type of work, professes so primitive a slogan: "Georgia is not only for Georgians." At that time the conversations with him aroused alarm in me: If such ideas become dominant, this is fraught with grave consequences, first of all for the people of the republic. I do not want to look like a prophet, but the forecast is coming true. And God grant that there be found among the Georgian people healthy forces and the courage to overcome this national romanticism and to begin the building of a new economy and culture on a different

foundation—the priority of general democratic, general human, general scientific values over narrow national values.

Romanticism is also characteristic of our central authorities, only I would call it the imperial aspiration, which is out of touch with reality, to preserve the union at any cost, by any means, including the use of troops. This is also communist romanticism, when vague ideals in the absence of a specific program, which every government and any ruling party should have, are declared as the sole and irrevocable choice.

Democratic romanticism, which is connected with the notion of the possibility of easily and quickly curing our society, having divided it, like a hapless television reporter, into "ours" and "not ours," can be seen with the naked idea. Here in our Leningrad City Soviet the democrats with candidate and doctoral diplomas in their pocket, who deftly include all the executives of enterprises among the conservatives, "whom one must not trust," and all communists without exception among reactionary, "against whom it is necessary to struggle," have not yet disappeared.

It is clear that such views have nothing in common with the sober evaluation of events and the objective examination of the positions of various social groups and ideas that sway minds. And, perhaps, the most important thing is to proceed at last from perestroyka romanticism to the scientific analysis and forecast and to the formulation of programs of the development of science, education, and society as a whole.

"Believe Me as a Lawyer...."

Today the role of science and the responsibility of scientists to the people are increasing as never before. Unfortunately, scientists themselves are not prepared for this. They are not prepared in many respects because our Academy of Sciences is an ossified structure. Hence the large number of personal tragedies of scientists and the enormous losses for society. The problem of reforming the USSR Academy of Sciences has come to the forefront—this does not raise doubts. But how is one to reform it, without lapsing into the revolutionary romanticism of razing "to the ground" and without establishing simultaneously and in exchange pseudoscientific organizations and structures?

I am not a specialist in the management of science, have never worked at academic institutions, and cannot argue without any self-interest, like an ordinary scientist: One must not allow the breaking up of the academic system. It is a matter not so much of the subjective aspect of the question: Who is an academician, and who did not become one? as of the necessity of preserving the potential of scientific collectives, schools, and traditions. It is absolutely impossible to build on the "rubble" of the Academy some new institution, without regard for ties and continuity.

It is also necessary to bear in mind the unique status that the Academy acquired after the well-known presidential ukase. Whereas earlier it, although it proclaimed its public nature, in essence was a state service (and under the conditions of the totalitarian regime could not be different) with all the flaws that are characteristic precisely of a bureaucratic structure, now the Academy has unexpectedly become a property owner, it has come into unheard of wealth. But who actually manages this wealth?

From the viewpoint of a lawyer, the category of property is always personified. Outside such personification it loses its meaning—both legal and social. And were we really not faced with this when, having made all the material resources of the country state property, we made them nobody's, ownerless? Within the Academy of Sciences for the present there is also no personification of property. The assertion that "the Academy is the owner" for a lawyer sounds not too competent and clear. Especially as the actual proprietor is the presidium. So was it not better to write down directly that the governing bodies of the Academy have secondary powers and the right of the day-to-day management of its property? While its primary units—those who actually possess, use, and manage the property—act as the owner. We are erecting obstacles for them by asserting that the Academy is the owner. In such a case I would prefer for the state to continue to remain the owner.

Thus, in spite of the outward liberal and democratic nature of the presidential ukase, I do not share its concept. The apparent good may become a serious hindrance in the modernization of academic structures from top to bottom and in the development of flexible and dynamic forms of the organization of science.

A Prescription for the "Bends"

I regard the organization of the Russian Academy of Sciences as nearly the best way out of the situation; today, being the largest and most skilled detachment of scientists of our country, it can breathe new life into the decrepit academic system. But for this it is also necessary to establish it on fundamentally new terms. First of all not to allow organizing groups of an unbecomingly low level for the Academy to be at its base. The danger of provincialism arises immediately. And not without reason are scientists of outlying areas acting as active heralds of the establishment of the republic academy and other academies. Yes, this is an objective movement that reflects the humiliating, unequal state of provincial science as compared with capital science, but it can just as objectively discredit this academy even before its birth. But another thing is needed—for the most authoritative Russian Academy to rouse provincial science and to give it new stimuli, including material ones.

Left radicalism, the democratic romanticism that was mentioned above, is also very dangerous. God forbid if the Russian Academy would be a scientific looking likeness of the Leningrad City Soviet or the Moscow City

Soviet (here I do not mean to say anything bad about these young democratic institutions of power). Now many people, not excluding scientific personnel, have gotten the "bends"—forced to be silent for long years, everyone, even those who have nothing to say, has begun to speak. But they want to speak, and a little more loudly—about the means of forming the academy and about its organs of management, about its interrelations with the state and public organizations. Of course, a broad discussion is necessary, and it is being conducted. If only what needs a thorough analysis and study would not be decided by a vote.

The necessity of changes has already developed into the establishment of a number of sectorial academies. The attempts to break science up among sectors personally puts me on my guard. Will they not lead to the same thing that the establishment of sectorial institutes under ministries and departments led to? It is important not to lose objective criteria and to preserve the interaction of various scientific disciplines. The "sectorialization" of science brings it closer to the client and expedites the achievement of a result, but blinkers appear on the researcher, which is extremely undesirable.... Is a balance of interests possible? I think it is, if we regard the Russian Academy as an Areopagus of the most prominent scientists in various directions and the corresponding sectorial academies as its "subsidiaries."

Voices are being heard: Fine, but to whom will the institutes now be subordinate—the union Academy? The Russian Academy? Sectorial academies? In my opinion, the former attachment of institutes in accordance with academic and sectorial principles has become obsolete. Different, less fixed ties, financial and organizational, both with the academies and with industry are needed. The goal is the great independence of institutes and the abandonment of the system of strict planning and strict reporting. But it is pointless to seek a single, universal form of the organization of science. Totalitarianism accustomed all of us to thinking in stereotypes, but it is fruitless, for it is incapable of generating new ideas, of competing.... It is also time to give up stereotypes in the organization of science.

And a final specification: If it were my will, I would organize not the RSFSR Academy of Sciences, but namely the Russian Academy of Sciences. I would restore it in Leningrad (perhaps, on the basis of the present Leningrad Scientific Center or, returning to idea of Petr I, in combination with the university). Even though this is a detail, it is a quite important one. And, in restoring the Russian Academy, I would borrow much from its former (prerevolutionary) charter.

The initial thrust—the method of making up the first detachment of Russian academicians—will predetermine the fate of this academy. And here variants are also possible. The main thing is to ensure the highest rating of the members of the Academy of Sciences and the democratic nature of the election.

"We Have Confused Sovietologists"

The reform of the academic system must not be delayed. It is necessary to stress this particularly: It is damnably offensive that our problems are multiplying because of endless squabbles and idleness. For six years we have been talking about the necessity of economic reforms without implementing them. Today we declare one thing and tomorrow the direct opposite, having altogether confused western Sovietologists. Everything is happening on the verbal level, hardly anything is actually changing. And what is more, we give these few changes a hostile greeting, and there is not one question, on which agreement would reign. Moreover, everyone not agreeing insists that he is right and wishes to affirm himself, including in science, although in this sphere it is important to attain the truth, and not victory, and polemics is a normal tool of everyday work, and not an end in itself and especially not a means of exposing and punishing an enemy. Therefore, the role of science should also increase in order to eliminate the emotional sediment in politics, economics, and social life.

It would seem that it has become easier to breathe, consciousness has been liberated, but...fruitful ideas are originating not among scientists, social reformism is not their destiny, at best they confine themselves to the functions of experts.

Given all of today's disputes one thing, in my opinion, is indisputable. The policy of the openness of our country, of market development, and of integration with world science and with the world economic system does not have an alternative. Just as there is no returning to the administrative command system and to the state monopoly in science. It is necessary to proceed from this in all our actions: when establishing nonstate structures of education, when making an independent examination, when carrying out the removal of party organizations from scientific and educational institutions, when sending our graduate students and scientists abroad for practical studies, as well as when organizing the system of the social protection of scientific personnel under the conditions of the market.

Not only scientists, but also the leadership of the country and ordinary citizens should realize: If society helps science, science will give society a chance to survive and prosper.

Scientists Lose Jobs as Funds Run Short

Physics Institute Lays Off 200

917A0196A Moscow ARGUMENTY I FAKTY in Russian No 32, Aug 91 p 5

[Interview with Igor Mikhaylovich Makarov, chief scientific secretary of the Presidium of the USSR Academy of Sciences, by ARGUMENTY I FAKTY correspondent G. Valyuzhenich; date and place not given: "Scientists on 'Forced' Leaves"; first two paragraphs are ARGUMENTY I FAKTY introduction]

[Text] "They say that at the Physics Institute of the USSR Academy of Sciences they have already cut 200 people...," "And at the Central Institute of Economics and Mathematics they have cut even more...." "While I have not been working for one and a half months..., the institute has no money, they sent me to take a vacation at my own expense..."—from letters, conversations, telephone calls.

Are there grounds for such panic? Our correspondent G. Valyuzhenich addressed this question to I. Makarov, chief scientific secretary of the Presidium of the USSR Academy of Sciences.

[Makarov] There has been no mass reduction of scientific personnel. We consider it intolerable, inasmuch as real science requires the stability of research collectives and scientific schools.

The Presidium of the Academy of Sciences adopted a special decision, which prohibit personnel to be dismissed on the basis of reduction. The introduction of administrative leaves without the retention of the wage is actually being implemented at several institutes.

[Valyuzhenich] It is possible to regard these leaves as a concealed form of the commenced unemployment among scientists or as a kind of reaction to the banning of reduction?

[Makarov] Our budget is capable of providing all institutes with a wage fund at today's level. However, this does not mean that the executives of institutes have been deprived of the opportunity to dismiss on the basis of certification unskilled specialists and scientists, who do not burden themselves with work.

Administrative leaves without the retention of pay can be regarded as new forms of the regulation of the economic situation.

[Valyuzhenich] Igor Mikhaylovich, is the consent of the worker required, if they "ask" him to take a vacation?

[Makarov] Certainly. Without the statement of the worker such a "vacation" is illegal, and it is possible to protest it. Although it is possible to find some compromise terms.

Thus, at the IPTM (Chernogolovka) practically the entire collective went on such leave, but assistance in the amount of the salary was given to everyone through the trade union organization. About 80 people at the Institute of High Temperatures were sent on leave for two weeks. At other institutes these are for the present isolated cases, for example, at the Institute of State and Law seven people were sent for 14 days.

[Valyuzhenich] How are academic institutes now being financed?

[Makarov] From three sources. First, there is the academy budget, which is distributed through the Presidium of the USSR Academy of Sciences (in 1990, 72 percent of the wage fund was covered from it). Second, by means of economic contracts with enterprises—they provided 20 percent of the amount of the wage fund, and, third, by means of the assets received from the Committee for Science and Technology. Now the wage fund is established at the level of the fourth quarter of the past year with allowance made for the assets which were distributed for various academic programs.

Unfortunately, this year we were forced to discontinue academic programs, inasmuch as the assets, which were received by the Academy, are barely enough for the payment of wages and for operating expenses.

Moreover, we increased substantially the wage of personnel, as was envisaged by the Ukase of the USSR President "On the Status of the USSR Academy of Sciences," without having received a ruble for this, although the allocation of assets for these purposes is envisaged by the same Ukase. Plus the increased deductions for social insurance....

[Valyuzhenich] But how was the wage increased?

[Makarov] During the first quarter of this year the average wage came to 419 rubles [R] (as compared with this period last year it had increased by R100). According to the plan it should have increased by a factor of 1.6-1.7, but only a 35 percent increase occurred. At the institutes, which are closer to specific developments and which have contracts, the wage, of course, is one and a half fold to twofold higher.

[Valyuzhenich] But, specifically, how much, for example, do an academician and a doctor of sciences now earn?

[Makarov] This depends on the position that they hold. For example, an academician, who is the director of an institute, earns R1,200 plus R500 as an academy member; a doctor of sciences, who heads a department, earns from R600 to R800.

[Valyuzhenich] But now the driver of a trolleybus earns more.... And what if scientists were to go on strike?

[Makarov] No one would notice this for a long time, but if drivers were to begin to strike.... Although in the long run the consequences for the development of the economy and society as a whole in the former case will, of course, be far more serious.

[Valyuzhenich] But the low opinion of the labor of scientists is fraught with the drain of "brains" to the West? Incidentally, how many scientists in recent times have left the country?

[Makarov] The trouble is not that many have, but that the best—young, capable candidates of sciences—are leaving.

[Valyuzhenich] In what does the solution lie?

[Makarov] For the time being in the initiative of the administration of institutes, in finding independently reserves of the stimulation of their labor and, in particular, even by saving on the same administrative leaves....

Now in the United States the question of the conclusion of contracts for various terms for our young specialists is being studied.

[Valyuzhenich] One often has occasion to hear the opinion that we are too worried about the financing of the basic sciences....

[Makarov] No European state, with the exception, perhaps, of Germany, is conducting basic research on such a broad range of problems as we are. In this respect we can be compared only with the United States. But it turned out historically that under the conditions of confrontation we were forced to do this.

Siberian Scientists Turn to Cooperatives

917A0196B Moscow SOVETSKAYA ROSSIYA in Russian 15 Aug 91 p 2

[Interview with Academician N.L. Dobretsov, deputy chairman of the Siberian Department of the USSR Academy of Sciences, by TASS correspondent V. Yelmakov under the rubric "The Science of Siberia" (Novosibirsk); date not given: "With the Rights of Cinderella"—first paragraph is SOVETSKAYA ROSSIYA introduction]

[Text] Due to meager financing the Siberian Department of the USSR Academy of Sciences was threatened with collapse. The low wage is forcing specialists to leave for cooperatives and small enterprises.

[Dobretsov] At the union academy, whose financial status is far from satisfactory, the Siberian outpost of science had in general the role of Cinderella, Academician N.L. Dobretsov, deputy chairman of the department, says in a conversation with a TASS correspondent. In the number of institutes and the number of associates the department comprises nearly 20 percent of the potential of the academy, while in financing it comprises 14.5 percent. At the Academy Campus with a population of 80,000, 6,000 people need the improvement of housing conditions. Basic science has taken a back seat, having ceded priority to current problems.

[Yelmakov] Why?

[Dobretsov] In recent years the allocations for it have been nearly halved. If the scientific schools, which were formed over decades, fall apart, the losses are irreplaceable.

[Yelmakov] Perestroyka is forcing the center to transfer more rights and powers to the provinces. Can the local budgets become a source of assets for science?

[Dobretsov] Of course, provided the social and economic projects are aimed at the development of specific oblasts and krays. I will name, for example, the major program on the development of the petroleum and gas industry on the basis of deposits of Eastern Siberia, which for the present are not being developed. The fixed capital will be allocated from the republic budget. At the same time Yakutiya, Krasnoyarsk Kray, and Irkutsk Oblast intend to share in the implementation of the program.

An innovation fund, which is called upon to ensure the development of the scientific and technical potential of the enterprises and organizations, which are located in our region, is being established within the framework of the Sibirskoye soglasheniye Association. The initial contribution to the authorized capital stock, which is being allocated by the RSFSR Council of Ministers, will come to 150 million rubles.

[Yelmakov] As was reported in the press, nearly every day Academician V.A. Koptyug, chairman of the Siberian Department of the USSR Academy of Sciences, signs documents for the departure of scientists from the USSR. Some are leaving for the sake of money, inefficient work does not suit others. How is one to attach and keep personnel?

[Dobretsov] One of the means is the establishment in Siberia of international scientific centers. The Baykal Basic Ecological Research Center, at which foreign specialists also work, is already operating here. Its associates have the opportunity to go abroad for practical training or for the continuation of research work. The Altay Humanities and Biospheric Research Center is at the stage of formation. Centers for the problems of the northern territories and solar-earth physics are being planned.

Medical NII's Lose All Subsidies

917A0196C Moscow RADIKAL in Russian No 28, 24 Jul 91 p 1

[Article under the rubric "A Fact for RADIKAL": "A New Roof—New Plans"]

[Text] With the elimination of the USSR Ministry of the Medical and Microbiological Industry the scientific research institutes, which belonged to the system of this ministry, came to be in a difficult position. Having been left without a "roof," they were also left without financing. In order to survive and to continue to engage in science, more than 10 leading institutes of the sector

and together with them several small enterprises, which assimilate the production of new drugs, and a number of scientific journals for problems of pharmacology, the pharmaceutical industry, and biotechnology united in the Farmbiopress Association.

Remembering the attitude toward themselves in the not so distant past, when they did not particularly take into account domestic pharmaceutical science, but trusted more and more drugs that were developed not in our country, the united scientific organizations consider it their main task to devise developments at the level of world models or else higher. But for this serious business contacts with foreign scientists are needed without fail.

The association has been registered in the RSFSR Ministry of Foreign Economic Relations and has acquired the status of a legal person, which has the right to realize independently and freely contacts with western scientists and specialists.

The interrelations of Farmbiopress with the Russian Ministry of Foreign Economic Relations were not confined just to the fact of registration. Specialists of the association will act as experts when concluding contracts for the import and export of drugs.

But, of course, all its future activity is possible only on the condition of the provision of assets. This question is being worked on. The State Committee for Chemistry and Biotechnologies is willing to assume the financing of the Farmbiopress Association.

Growing Dependence of Academy Science on Cooperatives

917A0208A Moscow POISK in Russian No 26 (112), 21-27 Jun 91 p 3

[Article by POISK correspondent Lidiya Usacheva under the rubric "What Is Science To Be Like?" (Ufa-Sverdlovsk): "It Is More Difficult To Tame, But More Profitable"]

[Text] One of the executives of an academic scientific research institute shared in a fit of frankness:

"I know perfectly well who from my laboratory works in a cooperative, but I pretend not to suspect anything."

"But what is reprehensible in this? For today even permission for the holding of more than one job is not required...."

My companion then and there became withdrawn and did not begin to develop the theme. But as it was it was clear: A sewing, purchasing, and construction cooperative is one thing and a scientific and technical cooperative is a completely different matter. Here, as a rule, the fruit of collective labor becomes the object of selling and the derivation of a profit. Is it really not insulting if someone were to use it individually or it were to get in general to people far from science? There is still absolutely no law on the protection of intellectual property, while enterprise is developing newer and newer territories—including those where "pure" basic science reigned earlier.

For example, in the Ural Department of the USSR Academy of Sciences there are already more than 40 cooperatives, small enterprises, introducing firms, and engineering centers of all sorts!

"What do you think of them?" I attempted to find out from the people I talked with.

"We would be happy without them, only how will you survive?" approximately the same answer followed.

And indeed: It is difficult today for science to survive. Even the Central Scientific Research Institute of Metallurgy and Materials (TsNIIM), which is well known outside the Urals, was unable to pick up in accordance with contracts half of last year's volume of cost accounting orders. And this is a sectorial institute that is located in the very center of machine building and metallurgy! And what is to be said about academic scientific research institutes that are far from "earthly" concerns? At the first shortage of assets the client declined their services. Now the former practice of strong-willed introduction is also out of the question.

But every cloud has a silver lining: The lack of money forced the representatives of basic science to rouse themselves and to rummage through the bins—will something, perhaps, be suitable for selling? It turned out that there was. Hundreds of ideas, which have not lost value and accumulated as dead weight in dissertations and reports, are entirely viable. It is necessary only to bring them out into the daylight and to put them into practice. This, it turned out, can give not only moral, but also material satisfaction.

I observed such an "economic renaissance" at the Bashkir Scientific Center, where the turnover of the cooperative based on the Institute of Organic Chemistry in some 1.5 years increased to 2 million rubles [R]. Here they assimilated on their own the production of the most scarce drugs and biologicals, on the acquisition of which the country spent and is still spending currency. It is noteworthy that, having earned money, the cooperative decided to use it not only for the improvement of the well-being of its staff members. From the revenues scientific conferences are being financed, instruments and reagents are being acquired for the center, the care of children of staff members at Pioneer camps is paid for, loans are issued for the purchase and construction of housing, garden houses.... What is more, the scientists of Ufa became the sponsors of the Bashkiriya Orchestra, which is well known for its skill far beyond the country.

Are you amazed at the scope? I am not. Because the activity of the cooperative completely corresponds to the principles of its existence. Here is what they wrote down in their program: "The cooperative of the Bashkir Scientific Center should become a cooperative of a special type, for the activity of which the intellectual and moral

and ethical power and appeal of science were made the basis. It should have a clean, bright face, which corresponds to the spirit of the many generations of scientists, who gave to science their dreams and best efforts...."

Academician Genrikh Tolstikov, chairman of the Bashkir Scientific Center, related that, having taken the establishment of this cooperative in his own hands, he advanced far-reaching goals: to strengthen the contacts between institutes, to stimulate interdisciplinary scientific research. And to tighten up discipline—after all, they enlist in work in the evenings the most resourceful and conscientious people. Like it or not, this is increasing creative competition.

Academician Tolstikov told about the first attempts at contacts with cooperative members as a prescription for survival during the transition to a market from the rostrum of the annual general meeting of the Ural Department, where nearly every speech sounded a groan: "Where is one to get the money?" But not everyone liked the advice—there is rather a lot of confusion. Moreover, there is the danger of "side effects." Oh, how they were "pierced" at the Ural Department with the transformation of the former construction and installation administration into a cooperative. They transferred everything—from the bulldozer to the last nail—to it, while now it is contriving to work only on the side—it is more profitable, ask an exorbitant price, while at the Academy of Sciences it is necessary to keep within the state estimates.

The comparison, of course, is an arbitrary one, but the lesson is universal: It is necessary to come to an agreement at once on the terms of coexistence, including on the principles of the dissolution of relations. But here, as I was convinced, from a legal standpoint there is "terra incognita." In the presidium of the Ural Department there was not one document on this theme, if you do not count the far from complete list of names of commercial subdivisions and the newly fledged Statute on Small Enterprises in the Ural Department.

True, a certain introducing firm under the direction of Valeriy Gorbachev, which in the department they have nicknamed the Administration of Commercial Activity, has been established under the presidium.

"Since it is an administration, hence," entrepreneurs were put on their guard, "are there control, orders, and centralization again?"

But the general director himself of the "administration," who, moreover, continues to remain in the position of secretary of the party committee, is refusing in every way to have anything to do with this mission. "Not to give instructions, but to obtain for the department a profit, by selling the developments of institutes—that is our task," he declares. And, it seems, he is already doing it: He has found allies and has rush through a number of operations on the patenting of developments of the Ural Department in the United States. The display of works of people of the Ural Department at a commercial exhibition in Germany also promises good contacts.

In short, in my opinion, because of enterprising people basic science has not begun to live worse. However, there are also other opinions. For example, criticism directed at the Akademicheskiy Innovation Center, which Mikhail Shur heads, is often heard in the Ural Department. There are no facts, but there are more than enough hints at shadiness and parasitizing in academic science. Are they bowing, perhaps, not in vain? However, as Corresponding Member Yuriy Vershinin, deputy chairman of the Ural Department of the USSR Academy of Sciences, stated, the absence of a blemish on the reputation of this firm was demonstrated by a detailed financial audit.

It is a different matter that, having been born under the roof of the Ural Department for the purpose of stimulating the creativity of young people (this was previously a unit in the system of the scientific and technical creativity of youth), the center now has little connection with the work of scientists. They have switched to construction, selling, and reselling. Did science lose from this? To a certain degree, yes. But it would have lost far more, had such a cooperative not been born at all. For it regularly "unleashes" hundreds of thousands of rubles for the needs of Ural science.

The Akademicheskiy Center finances the fund of youth research and makes assets available for keeping kindergartens and Pioneer camps in decent condition, in essence, it maintains a small academy of sciences. But what is it building? A scientific production center, or lyceum, as they still call it, where for the same Ural Department they will train future replacements.

So are there grounds not to trust Shur? It would appear that there are not. Nevertheless, threats addressed to his firm and demands to change the sign or pay—in the West, they say, they pay for a "roof"—are already being heard. Mikhail Lvovich is also willing to pay for this. But if they were to pester him with requests to leave, he would not pay: At his center the wage fund alone is R2 million, while the capacities.... People wanting to deal with such a partner will be found.

"It is necessary not to get annoyed and not to envy the opportunities of cooperative members, but to take the questions of establishing cooperatives under institutes in one's own hands," Boris Ayubashev, chief of the planning and finance department of the presidium of the Ural Department, believes. "It is necessary to conclude contracts and to try to use these nontraditional structures of the economy for the good of science. It is impossible to count any longer on budget financing alone. It would be nice, of course, not to think about money, but we have to. It is more difficult, of course, to live that way, but all the same it is more pleasant than living at odds."

Independent Status of Science Academies Creates Personnel 'Crisis'

917A0209A Moscow POISK in Russian No 23 (109), 31 May-6 Jun 91 p 6

[Article by Aleksey Zakharov, cochairman of the Moscow Association of Trade Union Organizations of the USSR Academy of Sciences, and Vladimir Pavlov, member of the board of the USSR Union of Scientists, under the rubric "What Is Science To Be Like?": "The Presidium Does Not Recommend Reductions, But Also Does Not Promise Money...."—first two paragraphs are POISK introduction]

[Text] The crisis has struck practically all social groups, but particularly hard the people with fixed sources of income. Among them are associates of the USSR Academy of Sciences.

Now even their social status is not clear. Earlier, before the presidential ukase on the Academy, they were actually government employees. In the future the new charter of the Academy of Sciences and other new internal academic acts will determine this status (in addition to the proposed Law on the Academy). They should be adopted by the general meeting of the Academy of Sciences, which has been specially convened for this. However, its convening has already been postponed twice (that last time to December 1991).

Nothing is as enervating as the uncertainty of the prospects for the future. The realities of our life show: A poor and hungry society has not time for basic science. Therefore, in the sentiments of scientific collectives morose numbness and hopelessness are more and more distinct.

There are more than enough grounds for this. The majority does not know by what laws the Academy and its institutes are now living. The wage and compensations are regularly late. The rumors of an impending total reduction persist (and the example of the former GDR is before us).

Today's sentiments contrast sharply with the rally euphoria that reigned two years ago. The celebrated election of people's deputies from the USSR Academy of Sciences took place on the wave of general political animation. Independent public organizations of scientists sprang up. Each of them has its own specific nature. For the Club of Inventors attached to the Academy of Sciences the emphasis is on politics. The Moscow Union of Scientists and the USSR Union of Scientists are more concerned about the creative, professional aspect of the life of people of science. Social protection is the main task of the Moscow Association of Trade Union Organizations of the Academy of Sciences.

Of course, it is impossible to mark clearly the limits of the field of their activity. Their interests intersect: Some people are active members simultaneously of two or else three organizations. And the pooling of their organizational and intellectual efforts in face of the crisis was just as natural. We see that the very existence of basic science in the country has been called into question. Inflation has made both scientific collectives and scientific personnel themselves destitute. There is a catastrophic lack of money for instruments and materials. Elementary scientific contacts are difficult: There is no money for business trips and for books and journals for libraries. Scientific personnel, who at one time held a privileged position, for their most part have found themselves below the poverty level. Only the undying thirst in a person for new knowledge is not allowing the interest of energetic and active young people in the occupation of scientist to die away. Long-term foreign scientific missions, which are financed mainly by foreign foundations and organizations, have become the usual individual "life preserver."

We believe that for the Academy of Sciences the strategy of survival should pursue two basic goals: to preserve the intellectual potential of scientific collectives and to ensure the social protection of their members under the conditions of the crisis. It is impossible to completely "relieve the pain" of the entry of academic institutions into the market, but we are obliged to make this process easier.

We, as representatives of the above-mentioned public organizations, propose a package of anticrisis steps:

1. The prompt publication of a directory of sources of financing of basic research in the USSR and abroad with an indication of not only the list of funds, but also the procedure of their addressing by individual scientists and research groups.

2. The establishment within the USSR Academy of Sciences of an employment service and a bank of unimplemented ideas and developments.

3. The prompt publication of a collection of all the standardized acts now in effect, which regulate legal and financial relations within the Academy of Sciences. The analysis and amendment of acts that contradict each other, the elimination of the unjustified restrictions of the independent financial activity of scientific organizations.

4. The addressing to legislative organs of the request to establish preferential taxation for institutions of the Academy of Sciences.

5. A moratorium on the planned staff reduction until the employment service is put into operation.

We proposed to discuss these steps and an entire set of questions at a special conference of scientists of the system of the USSR Academy of Sciences, the idea of which was advanced last year by the Club of Inventors. We understood that such a conference is obliged to be representative. The support of the idea by the leadership of the Academy would have been an obvious guarantee

of it. Initially we were not confident of such support, in spite of the gained experience of a constructive dialog and cooperation in the commissions of Academicians V. Kudryavtsev and O. Nefedov. And our apprehensions were confirmed. Although President of the USSR Academy of Sciences G. Marchuk was well-disposed to the idea of a conference, he, apparently, was still unable to convince his colleagues of the urgency of such a measure.

And still a reaction to our anticrisis proposals followed. They were discussed at a meeting of the presidium of the Academy of Sciences with our participation. In principle all of them were accepted, especially as the leadership of the Academy of Sciences on a number of items already had its own "reserve."

Polar opinions were voiced only with regard to the ban on the reduction of staffs. The line of reasoning of the objectors: Such a ban would shut off for institutes the opportunity to get rid of "ballast." We did not agree with this: The ban does not abolish at all the mechanism of certification.

In the final version the decree of the presidium of the USSR Academy of Sciences does not recommend that the reduction of staffs be carried out until the end of 1991. Such wording seems significant to us: In this most urgent matter the presidium does not intend to give orders, giving the institutes themselves in the spirit of the times the right to settle it.

Unfortunately, the administrative organs of the Academy of Sciences did not display such willingness in everything. The discussion that arose concerning the shares of the overhead showed this. Now these shares are established in the form of an order by the planning and economic administration. The proposal to give institutes freedom in this matter encountered the sharp objections of the leadership of this administration. So that we have to return again to this question. Perhaps, here not everything depends on the Academy itself. V. Kudryavtsev and A. Konoshenko reported on the contacts with the supreme organs of power in connection with the request on preferential taxation for institutions of the Academy of Sciences.

However, it is not that easy to implement even the approved anticrisis steps. A preliminary estimate showed that the size of the collection of prevailing standardized acts would come to about 1,000 pages. It is clear that with the "weights" of such verbose instructions it is impossible to make progress toward the market. The prompt revision of these documents is necessary. Precision and terseness are needed here, as in a combat situation.

Let us dwell in greater detail on one of the most important points of the decree of the presidium. It is a matter of establishing an employment service in the system of the Academy of Sciences. The elaboration of the idea has been entrusted to the Institute of Problems of Employment jointly with a number of administrative organs of the Academy. Representatives of public organizations are also being enlisted. Now labor exchanges are being established by both state structures and public structures (of course, with the appropriate license). As an example it is possible to cite the work on the organization of such an exchange, which is being performed in the Moscow Trade Union of Science and Education. The specific nature of scientific labor also requires its own separate information service. It is natural to include in the data bank information on job opportunities abroad. In addition to information services this service could also undertake the retraining of personnel.

An ad hoc anticrisis commission could contribute to the implementation of the decree of the presidium, as well as the entire set of anticrisis steps. According to the idea this is a rapid response organ, which consists of representatives of the leadership of the Academy of Sciences and public organizations. In addition to the prompt elaboration of mutually acceptable decisions it should inform all the associates of the Academy of Sciences about the steps being taken.

In order not to spawn new structures, the president of the USSR Academy of Sciences proposed to entrust these functions to the commission of Academician V. Kudryavtsev. The experience of a constructive dialog of the leadership of the Academy of Sciences and public organizations, which has been gained by it, supports such a proposal. It also makes sense, in our opinion, to form under this commission working groups for the preparation of documents of the conference of scientific associates of the Academy of Sciences.

In a separate point the decree obliges the executives of scientific institutions of the Academy of Sciences to bring it to the attention of all the associates.

Activities of Presidium of USSR Academy of Sciences Reported

Personnel Policy Discussed

917A0195A Moscow POISK in Russian No 21 (107), 17-23 May 91 p 2

[Article by a POISK correspondent under the rubric "In the Presidium of the USSR Academy of Sciences": "Do Not Fear the Reductions"; first paragraph is POISK introduction]

[Text] The Presidium of the USSR Academy of Sciences at the regular meeting adopted the decree "On Personnel Policy at Scientific Institutions of the USSR Academy of Sciences."

Representatives of public organizations—the Club of Inventors attached to the USSR Academy of Sciences, the Moscow Association of Trade Union Organizations, the Moscow Union of Scientists, and the USSR Union of Scientists—were invited to its discussion. Earlier these organizations drew up a package of "anticrisis" proposals, which were aimed at the preservation of the

intellectual potential of scientific institutions and the assurance of the social protection of their associates under the conditions of the economic crisis. A portion of the proposals were taken into account in the draft of the decree. One of its points stipulates the intolerability in 1991 of the carrying out of the reduction of staffs of scientific associates of institutions of the USSR Academy of Sciences, with the exception of cases of the elimination or reorganization of these institutions, which are provided for by law. The decree recommends that the administration consider personnel questions with the extensive participation of trade union organizations.

President of the USSR Academy of Sciences G. Marchuk recalled that institutes of the Academy of Sciences have been given the right to independently dispose of the social development fund for making any additional subsidies available and for improving the working and living conditions of associates.

Academician V. Kudryavtsev informed the presidium about the appeal to the USSR Supreme Soviet with the request on the establishment of preferential taxation for institutions of the Academy of Sciences.

Organizational Decisions Reported

917A0195B Moscow POISK in Russian No 24 (110), 7-13 Jun 91 p 2

[Article]

[Excerpt] [passage omitted] **...Resolved**

—to organize in Kemerovo the Institute of Chemistry of Carbon Materials of the Siberian Department of the USSR Academy of Sciences on the basis of the department of physical chemistry and coal chemistry of the Institute of Coal of the Siberian Department of the USSR Academy of Sciences,

—to transform the laboratory of forest science of the USSR Academy of Sciences into the Institute of Forest Science of the USSR Academy of Sciences,

—to approve the agreements of the Far Eastern Department of the USSR Academy of Sciences and the University of Alaska of 30 March 1990 on the organization of the Arktika International Scientific Research Center in Magadan; to organize in Magadan the Soviet part of the Arktika Center with the rights of an institute of the USSR Academy of Sciences.

...Discussed

—the draft of the Law on the Organization of Operations and the Assurance of Safety in the Area of Genetic Engineering. [passage omitted]

Role of 'Independent University' in Solving S&T Personnel Problem

917A0204A Moscow RADIKAL in Russian No 28, 24 Jul 91 p 2

[Article by Oleg Zavyalov and Mikhail Polivanov under the rubric "The RADIKAL Exchange": "The 'Brain Drain' and the Independent University"—first two paragraphs are RADIKAL introduction]

[Text] The Independent Moscow University was presented in the preceding issue under the rubric "A Fact for RADIKAL." Passions are already rising to the utmost around it. "A university of potential emigrants," "a terminal station," "brains for America?"... These are not yet the most pointed statements about the Independent Moscow University.

Our authors propose to look into the problem, having left emotions aside.

At best (and with rare exception) our higher educational institutions are now performing only the functions of tekhnikums. Under these conditions one should not only reform the already existing system of higher education in the country, but also develop in it new alternative structures. This will at least make it possible to increase the existing standards.

As for the project proposed below, its minimum result (given the most adverse circumstances) would be that in four to five years the country would get 10-15 world-class mathematicians and theoretical physicists. In itself this would be an important contribution to our future.

It is possible to hope that the Independent Moscow University, being simultaneously a scientific center and a center for the training of specialists of an international class, will contribute to the recreation of the domestic natural science and humanities elite, to the integration of Soviet science in world scientific structures, and to the strengthening of cultural ties with the Russian-language Diaspora.

The Independent Moscow University will hardly solve the problem of the "brain drain" from the country, but we are confident that here, too, it will be a step in the right direction.

Very soon we will become witnesses to a gigantic wave of emigration from the USSR. Experts cite different figures. But today it is clear that not less than 8 million people will want to leave the country (30 million is named as the top estimate). This is significantly more than all our emigration flows in the 20th century, and in scale is comparable only to the deportations and exiles of the Stalinist period. Of course, this time people will leave voluntarily. Nevertheless, the mass nature of such migration will give rise to severe problems both of a personal level and for the country as a whole.

One of these problems, which has a direct bearing on the idea of the Independent University, is the already mentioned notorious "brain drain."

It is necessary to admit: In the future army of emigrants young people, of course, will make up the most active and a numerically large part. A certain and, perhaps, even a significant share of the graduates of the Independent University after a while will find themselves abroad. Someone from the very start will also regard the Independent University as a convenient springboard for a jump into a job at European and American scientific centers.

But these apprehensions still are based on the paradigm, which has discredited itself, of the world as the ideological confrontation of two camps, in which it is most important of all not to hand over to the enemy "the plan of Soviet plants."

Let us recall the experience of postwar Europe and Japan. At that time the best scientists left their countries for a long time, in order to obtain an education and work experience in the United States. However, in 15-20 years, starting roughly in 1960-1965, when Japan and Europe had been able at last to provide to some extent acceptable conditions for fruitful scientific work, scientists began to return to their homeland, in spite of the preserved (and preserved to this day) appreciable difference in the wage. The skills and contacts, which they acquired in emigration, made it possible in a short time to bring the scientific schools of these countries up to the most advanced positions.

At that time world-famous scientists—Haag, Mossbauer, Regge, Moser... returned home. The very broad emigration of the postwar years in the end contributed to the significant increase of the scientific level both in the United States and in the very countries that had, it would seem, suffered most from the "brain drain." In short, in the entirely foreseeable future it is more correct to talk not about the "drain," but about the "circulation of brains." The emigration of scientists was as if a long-term investment in the future well-being of the people.

Let us now change the characteristic time scale of our discussion and ask ourselves whether the "brain drain" is tragic for the immediate situation in the country. Is the scientist, who works outside the country, lost for it?

In our opinion, there is no clear answer to this question. Modern basic science is a unified organism, to which divisions into geographic and political parts are alien (and harmful). A mathematical theorem, which has been proven at Princeton, just as rapidly (far more rapidly) becomes the property of all mankind as a theorem that has been proven in Leningrad. While the information about the elementary particle, which was discovered at the European Center for Nuclear Research, is just as accessible (far more accessible) for any utilization as the information on the results of an experiment, say, at Protvino. The scientific product goes into the common

pot regardless of where it was produced. The question is whether it will actually be used in one country or another. But this is sooner a general social and economic question than a scientific question.

There is another feature. The world scientific community is indivisible. A specialist, who has left of a long time or forever, provided he does not feel bitter resentment for compatriots, proves to be connected by 1,000 invisible threads with his own institute. While remaining in the eyes of western scientists a representative of the Russian scientific school, he wittingly or unwittingly promotes its achievements. He shares information with friends, invites former colleagues to conferences and for practical studies, and continues to be concerned about his pupils and graduate students, who are performing, as before, but a little better, vitally important functions for domestic science, promoting integration in the world scientific system.

It is clear that not everything is that good in the West and not everything is that bad here. It is also clear that they are rich, while we are poor and that one has to cut his coat according to the cloth. It is also correct that not only pragmatic comparisons are important, there is also the sense of homeland, "the love for paternal graves." Precisely scientists are most often of all strange people, they are nearly always willing to live a difficult and even wretched life. But they also understand that this life (and particularly scientific life) is short and it is possible simply not to have time to realize their scientific potentials under complicated circumstances. In other words, no entreaties and curses will all the same halt the "brain drain." It is necessary to accept it as an inevitable fact and to try as best as possible to react to it.

The majority of scientists leave with pain and the hope that some day, when the situation returns to normal, they will return and will live and work in their native land. For what portion of the emigrants this hope will be fulfilled depends in part on us, who have decided (perhaps, for the time being?) to remain here. The better our order is, in particular, the better higher education is organized in our country, the greater the desire of our future emigrants to return home and to bring their experience for the good of their country will be.

The time of instruction at a university means very much for every person. It establishes in his soul extremely stable psychological structures. If these are structures of affection, and not hatred, the internal bonds of the scientist with his alma mater will be indissoluble absolutely regardless of where he is physically.

What is it necessary to do in order to alleviate the problems that are connected with the "brain drain"? Of course, radical steps are impossible before the stabilization of the economic and political situation in the country. But it is necessary already now to change the attitude both toward the very process of the "brain drain" and to the real people who are involved in it. It would not be a bad idea to retain, if only nominally, for scientists, who have left for a long time, their position at their own institute, perhaps, it would also be worth paying a symbolic wage. It is also useful to think about long-term contracts, which presume that a scientist, who works at one of the western universities, will spend several months here. At the same time it would be necessary to use the long-term stay of our older scientists abroad for the arrangement and facilitation of comparatively short missions of young people to scientific centers, where they will undergo some "breaking in" in highly competent international scientific surroundings.

Summarizing, let us say once again that in many respects it is possible to regard the "brain drain" as a positive phenomenon that is helping to eliminate the symptoms of stagnation, which, unfortunately, are more and more characteristic of our science. This process is conducive to the increase of the degree of "convertibility" of our science and to the identification of energetic and gifted young scientists, who, if they are not disturbed, will hold with time leading positions in our science.

The scientist, who realizes that his intellectual potential is valued and is finding application, will spend a large part of his life in his own country far more willingly than a skilled professional, who feels that no one needs his innovative ideas.

And, finally, a last thing. Why bother at all with the Independent University? What, do we not have concerns that are a little more important? The country is falling apart, there is nothing to eat, there is dirt in the streets, there is a crush on the bus—it is necessary to do work, there it is necessary to found a joint venture or, for example, a party, but you are with the university.... Just wait, somehow we will manage, while, take a look, it will also reach the university....

Let us relate a parable on this. The god Indra got mad at the raja Harichanda and subjected him to terrible punishment. The sentence was as follows: For seven years not a drop of rain will fall on the dried up lands of Harichanda. The kingdom of Harichanda fell into a state of neglect—there is nothing to eat, there is a crush on the bus. The god Mahadeo was ordered to follow the carrying out of the punishment. For correctness Mahadeo worn on his chest a horn that causes it to rain. And then once, in the third year of the term, Mahadeo, while patrolling the unfortunate land, met a peasant who was...plowing the land. "What are you doing, do you not know that there will be no rain for another four years?" Mahadeo asked. "I know" was the response. "Why are you doing this?" "But if I do not do this, in four years I, perhaps, will forget how to plow."

Thus, perhaps, the main thing now is not to forget how to plow. Some (cautious) optimism can be based on the (improbable) ending of the related tale. Having heard out the peasant, Mahadeo thought: "But will I not forget how to make it rain?" And he blew the horn.

Yeltsin Promises Support for RSFSR VUZ S&T Programs

917A0210A Moscow POISK in Russian No 26 (112), 21-27 Jun 91 p 1

[Article: "Are the Words of the Candidate the Deeds of the President?—first three paragraphs are POISK introduction]

[Text] On 30 May 1991 Boris Yeltsin was not yet the president of Russia.

On 30 May he spoke in Tula at a conference of rectors of Russian higher educational institutions (VUZ). It was the peak of the election race, and he promised.

These were the promises of a presidential candidate. Will they become the deeds of President Yeltsin?

"Without accelerated scientific and technological development and, consequently, without specialists of the highest level we will not get out of this hole. Therefore, the questions of the development of education and science will be included on the list of priority and, subsequently, superpriority ones. As soon as the economy begins to stabilize somewhat here, we will immediately announce the superpriority support of science and higher educational institutions."

"We understand that during the transition to a market economy, under the conditions of a strict financial policy, scientific activity may be under threat.... In connection with this we are trying, at the least, to maintain this year the level of state support of scientific activity."

"I believe that Russian higher educational institutions should have some single source of their own. If here every republic, which belongs to the Russian Federation, were now to privatize, to nationalize higher educational institutions, we would inflame the national process that is under way.... It is necessary to approach this very carefully. It is better still to seek advice...."

"How is one to return land to higher educational institutions?... Radical suggestions, of course, have been voiced here. I would say, of the tsarist level. It was the tsar who previously did such things: He came and presented land to a higher educational institution, a university. You know, we must overcome one barrier here. This is with respect to the local Soviets. If an agreement were reached on the solution of the problem by a single document, I would agree, for example, simply to transfer the land to higher educational institutions."

"They asked me to give my word that there would be left at Russian higher educational institutions 70 percent of the currency earned by them.... We give such word together with the government."

"As of 1 January 1992 the average stipend of Russian undergraduates will come to 195 rubles."

"It is necessary to stimulate as much as possible the enterprise of professors, instructors, and even undergraduates by the establishment of scientific research and introducing firms with preferential taxation. Perhaps, we will see, even with exemption from taxes."

"Our services are not accustomed to engaging in the material and technical supply of higher educational institutions.... And we have thus far not been able to accustom them to it. If we do not accustom them to it, we will replace them."

"The problems of establishing universities in ancient Russian cities should be studied carefully and, perhaps, the corresponding decision should be made. The local Soviets, we hope, will come forth with proposals."

Round Table Discusses Information Policy Shortcomings

917A0211A Moscow POISK in Russian No 26 (112), 21-27 Jun 91 p 4

[Report on POISK round table with Deputy Chairman of the RSFSR State Committee for Science and the Higher School Marat Guriyev, Georgiy Gens, general director of the LANIT Joint Venture, Deputy Chairman of the USSR State Committee for Computer Technology and Information Science Vyacheslav Korchagin, Deputy Chairman of the RSFSR Council of Ministers Nikolay Malyshev, and Corresponding Member of the USSR Academy of Sciences Igor Mizin, director of the Institute of Problems of Information Science of the USSR Academy of Sciences, conducted by Yelizaveta Ponarina, under the rubric "The 100 Problems of Computers"; date not given: "The Campaign Has Wound Down. It Is Time To Get to Work"—first five paragraphs are POISK introduction]

[Text] The fact that prices are jumping and, for the most part, upward, is not gladdening. Price handbooks, like thermometers, record the illness of the economy. But there is growth, judging from which it is necessary to say: The condition of the patient is not hopeless, the tendency towards recovery has appeared—this is the appearance of a real price for information. Moreover, for that information, without which it is impossible to determine the real value of things and phenomena. Information, in short, is becoming a commodity.

But this is possible only in case of the extensive dissemination of electronic means of its transmission. Here, as is known, we are lagging behind. At the All-Russian Conference of Rectors of Higher Educational Institutes I heard the following term: the coefficient of the intellectual level of young people. In 1950 we were in second place in the world with respect to it. Now we are beyond 50th place. The catastrophic decline, education specialists believe, began in the middle of the 1970's, when personal computers spread in the West. And immediately after that the opportunity in a matter of minutes to call to the display screen information that is stored in all kinds of dossiers, archives, and libraries of practically the entire world.

Until now we have been deprived of this intellectual luxury, but without it at any moment we will find ourselves not simply on the fringe of civilization, but literally at the edge of the abyss that separates the world of ignorance and knowledge. This is the greatest tragedy, which we still have to realize. But which it is possible and necessary to avert by the efforts of the entire state and each of us—so stated the specialists who gathered the other day at the round table of the editorial board.

With what is one to begin? What is it possible to ignore at the time of our total deficit? What real goals in the matter of the informatization of education is it necessary to attempt to achieve in the very immediate future?

The meeting participants answer these questions.

[Malyshev] It is necessary to begin with a clear idea: There will be no market without the extensive dissemination of information technologies. For exchanges cannot operate without rapid and reliable information, while without exchanges both the seller and the buyer are blind, deaf, and dumb. They are incapable of determining correctly the price of a commodity and do not know who needs it and how much of it is needed, what the rates of credit for its production are, and where to obtain components and auxiliary equipment and at what price.

The same thing concerns the banking system. Our banks are the slowest ones in the world, but have hundreds of thousands of users. One has to wait two weeks each for confirmation of payment, even when an operation was performed within Moscow. But the financial world refuses to operate that way: For it our speeds are paralysis.

[Mizin] If we want to be a part of the world community and to participate in the world economy, we need, first, to organize properly the information flows within the country and, second, to make contact easily with surrounding countries. Is it really possible to forget that the establishment of an information network of Europe is proposed in 1992? If we do not become a part of it, we will lose without fail due to the lack of objective rapid information 10-15 percent of the profit in case of any operation.

One solution is visible here: to carry out informatization at the state level.

[Ponarina] The meaning of the word "informatization" has faded from frequent use and has set the teeth of the simple person or, as they now say, the taxpayer on edge. For state support is money from our pocket. The appeals to engage in "the computerization of the homeland" inspire hardly anyone, for they smack of the system of working by spurts.

While people waited for attention to computerization on the part of the state, there was hardly any computer equipment in the Union. Scarcely had they given freedom to private initiative, when they imported hundreds of thousands of the same personal computers (PEVM's). Yes, this turned into the lack of coordination of the computer pool, the mismatch of machines, but there is equipment all the same, yet the promised all-union concept of the informatization of society never appeared.... So is it worth putting trust again in global state programs?

[Guriyev] It is not worth it, but it is necessary to ensure state support of informatization. The USSR State Committee for Computer Technology and Information Science, which on the instructions of the USSR Supreme Soviet was developing this concept, did much and, undoubtedly, value work. But its defect is the orientation toward the centralized (goal program) principle of the

allocation of functions and resources, the counting on a command and enthusiasm in response, and inadequate consideration of the realities of the crisis period. As a result the program did not reach the stage of the allocation of assets.

Having taken these mistakes into account, we formulated our republic, Russian, concept on the basis of a clear conviction: Informatization should take place not at the expense of the state, as individual officials see it, but at the expense of the subjects of economic activity and is prompted by a specific interest locally.

State support of these processes should have the nature of protectionist measures, tax credits, the certification of software and the standardization of networks, the promotion of the development of respectable joint works, and the organization of healthy competition.

[Mizin] In our country the needs in this sphere are so great that even if we enlist tens of serious organizations, work will be found for all. But now, by the way, it is very difficult to unite these organizations. For today each one in its own way is trying to accomplish tasks of the commercial level. And centralization here—of course, given the simultaneous effect of antimonopoly approaches—is simply necessary. Incidentally, in all highly developed countries the problem of informatization is a state problem. However, the state there, as a rule, supports not all directions. The problem of the development and mass production of computers for personal use is being solved perfectly well without such support.

But in the development of communications and data transmission systems and the technical supply of auxiliary services one cannot manage without state support. The FRG Ministry for Post and Telecommunications is a vivid example. Everything that is decided in the area of the infrastructure depends on it. The ministry for a number of jobs also enlists private companies. But they operate in accordance with a centralized project and rely on state financing. On this level the experience of Brazil is also significant. Not that long ago the decision was made here to switch entirely to fiber optic communications channels. The development of the concept and the implementation of this entire program are also being carried out at the state level.

[Malyshev] And if necessary, N. Malyshev adds, at the governmental, presidential level it is necessary to use a strong-willed policy. For example, we calculated how we will develop the structure of main telecommunications lines and issued the ukase that no bank of the country has the right to operate, if by 1 January 1994 it has not acquired an electronic data processing system.

This will immediately entail a train of rapid changes. For any amount, which has been rung up on the cash register at the smallest shop, will automatically be recorded at the bank and the tax will be taken from it. The need for tax inspects and the complex human relations, which are associated with them, disappear. For the present it is difficult to give an electronic system a bribe.

If new private owners, joint-stock companies, and state enterprises appear, everyone will be obliged to joint this system.

[Ponarina] But this is again a command economy!

[Malyshev] No. This is state regulation by means of legislative acts and the financial support of priority directions of development. Greece is a country with a market economy. But namely there it has been established: If you intend to open a store, buy a computer, join the national computer network, and then deal in socks if you like or in citrus plants if you like.

The West took 30 years to build such a system. We will also not get out of this matter, although it will cost tens of billions of dollars. And it is possible to find these assets in just one way—parliament should decide legislatively that starting at such and such a time we will begin to spend annually so many percent of our national income on the informatization of the country.

[Ponarina] But if we then calculate the effectiveness, will it prove to be not less than from the Baykal-Amur Railway Line or the diversion of northern rivers?... You say yourself: In the country there is a mixture of equipment, it is being used as calculators and typewriters. And there is no hope that tomorrow everything will change: For our one-sixth of the dry land is practically devoid of telecommunications networks....

[Malyshev] The most amazing thing is that networks do exist. There are more wires on the territory of the RSFSR than in all of Europe. But these are, first, closed networks—of the CPSU Central Committee, the Ministry of Internal Affairs, the KGB, and sectorial ministries. While, second, these are networks that were built according to the vertical principle of the movement of information. It works for accounting and reporting, but not for communication. It is necessary to reconstruct them and to lay horizontal links between users. But this is technically, technologically, and organizationally a tremendous job.

But it has been started. For example, the Istok departmental network, which in practice is spread throughout the country, is open for users. If desired, it is entirely possible to hook up to it and to use it to advantage.

But, of course, it is also necessary to develop other networks, using for this all the available assets. Including foreign investments....

[Gens] It is here that I would like to elaborate. It is necessary to begin making networks not from above, but from below, locally. They also have a suitable name for this—local area networks. The unified information policy will degenerate into scribbling, if it is not adopted locally. It is necessary to set up the primary networks immediately, now at every commercial office, scientific research institute, library, clinic, trade organization—

everywhere that there are computers. The majority of users are incapable of doing this themselves, but this is also not required of them. In the West, and now also in our country, professionals—dealer and distributor firms—enter the user in the network.

By logic, their contact with the user should begin with consultation—for how much and for what purposes to buy computer equipment and what computer equipment to buy. What kind of local area network it is then necessary and possible to make up from it. The consultation, of course, is for a fee, for example, for 1,500-2,000 rubles [R]. But the saving of assets, time, and efforts and the opportunities afforded are incomparably greater. The middleman is an intellectual link between the producer and the user in the name of the interests of the latter. In essence this is an expert. In the world, for example, there is the Langroupinternational firm. It unites within it world suppliers of local area networks from 14 countries. It unites them for a main purpose—to give the world information about the best achievements in the area of communications and to warn about unpromising, dead-end paths of development. This information costs money, but saves many firms from ruin and, what is the main thing, promotes the scientific and technical development of society.

So that one computer, even a most powerful and refined one, today solves hardly anything. Only networks ensure the viability of market structures and enable man to live equally independently both in the city and at the pole. We are now advocating the privatization of land and the development of farming. But how does it develop, if we do not give the farmer communications? For without the opportunity to order easily and independently spare parts, fertilizers, and feeds, to call a veterinarian, and to find out about matters on the market he was, is, and will be a slave of all the mafia structures.

For they in general are becoming mafia ones precisely where information is lacking. If we do not form local area networks locally, we will not obtain a return and will again discredit the very idea, we will perish in longing for departmental distribution and the paternal concern of bureaucrats.

[Korchagin] No, there will no longer be departmental boundlessness. But it is necessary to develop the statewide data transmission system on unified technical solutions and legal principles. Informatization is one of the tasks, the accomplishment of which is impossible at the local level. It, on the contrary, promotes the unity of peoples and republics. It is necessary to specify the principles of communication compatibility—from the hardware to the language of use. And then, finally, to draw up legislative documents in the area of informatization. In the United States more than 250 of them are in effect, while in our country for the present there is none.

We do not have the right of the individual to information. Even about oneself. I should have the right to know what information about me has been put into the archives, and in case of the distortion of reality to protest it through the court. That is how that civilized world lives. But we.... For the present in no court will you find a specialist on information law. They do not train them at our higher educational institutions, and besides how is one to train them, if there is no law on informatization in the USSR? This entire set of problems—from the development of a market economy to the formation of a rule-of-law state—requires intervention at the level of legislative state structures.

[Guriyev] I would like to elaborate. The necessity of participation in the informatization of state organs of power is not our longing for totalitarianism or the shifting of responsibility onto the shoulders of others. This is an objective necessity that was realized from the experience of developed powers.

Recently together with Nikolay Grigoryevich Malyshev we had a conversation with Mr. Mueller, head of the World University. He stressed: "Here in America the process of informatization is characterized by additional decentralization locally and efficient centralization from above. We announce in a centralized manner all the standards of the networks, through which information passes, and the lists of databases, which operate in these networks. And they—these standards—discipline everyone far more strongly than the edicts of bureaucrats did earlier."

But today we are complaining: In our country ochlocracy, mass meeting rule, and mob rule are replacing democracy. We say: We have not attained a sense of order... No, we have not attained it, we tumbled too long ago away from the highroad of democratization. On Lev Tolstoy's bookshelf at Yasnaya Polyana since the beginning of the century there have been books on this theme in various languages. But until now we did not know anything about many of them, not that we read them—there was not need to.

It is necessary to read, it is necessary to think, to cultivate the culture of understanding democracy... But this is a long path, which the intelligentsia usually travels first, while in business it is not the most active human material. The most active, risky, mobile material, which easily puts shoulders, hands, pockets, and heads under a new commercial matter, is now in joint ventures and small, joint-stock enterprises. Thus it is the first to be faced with the rules of civilized business. It is faced with them, but does not obey them and does not always adopt them.

Computer networks are the technical exponent of democracy, a guarantee of glasnost and the reliability of data. Plus this is a mighty union of intelligence.

[Gens] Oh, I am afraid, this ascent to perfection does not threaten us. In the Ministry of Foreign Economic Relations, they say, a decree of gigantic destructive force has already been prepared. This is a document on the increase of the duty to 2,000 percent on the importing to the Union of computer equipment. That is, at any

moment a new "iron curtain" will be lowered. And they will lower it under the pressure of the producers of computer equipment for the sake of their own departmental interests. Moreover, the most base interests—these are attempts to conceal their own complete technical, technological, and intellectual computer impotence. They are not standing up to competition with western equipment, so they want simply not to allow it on our market. Why protect such producers? This is absurd—they developed the rather good YeS-1863. But by the end of the year they will make only several thousand, and at the highest prices.

[Mizin] Such games with duties will again enable the monopolists to thrust on us what is worthless. The old policy of arm twisting. Moreover, it will also strike at producers: Given the weakness of the economy the duty will not support them, but will merely reinforce the lag.

[Korchagin] Are we, perhaps, exaggerating the danger—the amount of the duty and its use? After all, state regulation of the computer market is necessary. Probably, with the introduction of a high duty rules, which enable the state to eliminate it for specific purposes or to reduce it, will also be established. For example, for the needs of education.

[Gens] On the basis of precisely the needs of education, that is, our future, I also consider such a policy disastrous. By attempting now to preserve the workplaces of several hundred thousand, we are ruining the entire country intellectually, keeping it by force within old information technologies. For everything—health care, ecology, existence itself—will follow this. Such a step, I believe, is intolerable. It is necessary to plug one's ears to the wails of producers, but to heed the requests of consumers.

[Ponarina] We have approached the problem of the informatization of education. In the Informatizatsiya Rossii Program, which was prepared by a collective of specialists of the RSFSR Council of Ministers, its commission for the development of science and informatization, and the RSFSR State Committee for Science and the Higher School—including round-table participants N. Malyshev and M. Guriyev—I did not find such a section....

[Guriyev] It is packaged in many sections of the program, because it is a compound problem. And first of all it orients us toward the introduction in education of new information technologies. There are on the order of 20 of them, but only five or six have enduring traditions. These are computer classrooms, computer-aided design systems, systems for the automation of scientific research....

But there are technologies that are still little disseminated. For example, electronic textbooks that enable an undergraduate to master a subject under optimum individual conditions. But the main thing is to save from neglect the intellectual potential of professors from the provinces. It is no secret that in our country it is a great problem to publish there a textbook or manual. There are no paper, typographic capacities, and typesetters. Many excellent courses are being lost, remaining written out by hand on scraps of paper. The technology of the electronic textbook is capable of moving instructors to the use of new, purely computer forms of presentation and of enlivening the material. And economically this is advantageous for them—the assets received from the sale of textbooks all the same will support a professor.

We intend to support as much as possible the development of such textbooks and jackets for them.

Yes, there are not enough personal computers, yes, there is no money for their purchase. Especially as we will allocate assets for them only to those people who know how to use them effectively—that, is, to produce a competitive product on this personal computer. "Give a computer today to whoever in a year will earn on it another one"—that is our rule in allocating money.

Desktop publishing systems, electronic mail, from which library systems, electronic bulletin boards, and video broadcast catalogs are being spun off, and so on and so on and so on...come immediately after the electronic textbook. There is something to develop. But only higher educational institutions themselves can do everything. Their computer assets, which should be determined with the strategy and tactics of the inclusion of the higher educational institution in regional and republic networks, the projects of the informatization of education. There can be no standard solutions. One will have to pay for each participation. Perhaps, then charitable funds will appear, but for the time being.... But for the time being we can only maintain the activity with budget assets. But there will be these assets—in the recommendations of the Tula conference of rectors of higher educational institutions the request addressed to the RSFSR Council of Ministers to allocate for the informatization of the higher school R300 million was recorded. I believe that there is hope of receiving them.

The informatization of the country is an enormous task. The campaign on its accomplishment, it appears, has wound down. Now it is time to get to work.

Commentary on New Law on Patents, Inventions

917A0202A Moscow DELOVOY MIR in Russian
9 Jul 91 p 4

[Article by Candidate of Economic Sciences Stanislav Simanovskiy, head of the sector of innovation policy and international technological exchange of the Institute of International Economic and Political Research of the USSR Academy of Sciences, under the rubric "Science": "The Law Has Been Passed—Long Live the Law!"—first paragraph is DELOVOY MIR introduction]

[Text] After more than two years of consideration and discussion in two readings with subsequent numerous amendments the Law on Inventions in the USSR has finally been passed. Candidate of Economic Sciences Stanislav Simanovskiy, head of the sector of innovation policy and international technological exchange of the Institute of International Economic and Political Research of the USSR Academy of Sciences, comments on it.

Although this law was passed somehow unnoticed and for this present it is still difficult to appreciate all its truly enormous importance, it is now already clear that it may become a powerful catalyst of the scientific and technical progress of our country and the transition to the market. Its key features are the change of the relations of ownership of the products of intellectual labor, the creation of a market of scientific and technical ideas, the overcoming of the monopolism of departments and producers, the privatization of the results of scientific and technical creativity, and integration in the world economy.

The law obviously works for the openness of our economy and its active and equal inclusion in world economic relations. It introduces in our invention process civilized criteria of the protectability of an invention, its temporary legal protection, a patent court for the protection of the rights of inventors and patentees, and a license procedure of the regulation of the economic relations between the developers and users of scientific and technical achievements. In the law there are also a number of other provisions, which substantially facilitate and speed up the passage of an invention from its idea to series production and marketing.

The introduction of the institution of the patent as the sole form of the protection of an invention (Article 3) serves as the heart of the new law, which determines its reformist concept and market orientation.

The term "job-related invention" is not used directly in the law. But Article 4 clearly regulates the contractual relations between the inventor and the employer with respect to the ownership of inventions that are developed in the process of fulfilling specific official technical assignments, which have been set for the inventor, as is customary in world practice. The right granted to the inventor to a free nonexclusive license enables him to organize in one form or another the parallel production of the corresponding product. In the end this leads to the development of enterprise and the demonopolization of production.

Section II—"The Use of Inventions"—is completely new for it. It regulates the use of inventions in economic practice—including with the use of a license agreement and the exclusive, nonexclusive, open, and compulsory forms of licensing (Articles 22-25) for the purpose of increasing the scale of the commercial realization of the invention in the interests of society.

One should note separately the stimulating nature of the provisions of the section, which concern the encouragement by the state of the use of inventions and provide for the most favorable preferential tax regime. According to the law (Article 28) the profit (revenue) and currency receipts of the enterprise that is the patentee from the use of an invention in internal production and from the sale of a license for it, as well as of the enterprise, which purchased and introduced the license, are not taxed for five years from the date of the start of the use of the invention. Moreover, with respect to important inventions of national economic significance this period can be extended, particularly in the area of ecology and medicine. If the organization is carried on the state budget, the entire saving of the estimated allocations, which has been achieved owing to the use of inventions, as well as the revenues from the sale of licenses remain entirely at its disposal for five years from the date of the start of the use of the invention or the sale of a license.

Of course, for inventors the articles, which are connected with the payment of the reward, are very important. Before the upper limit of the reward—20,000 rubles—"offended" everyone. Incidentally, rarely did anyone succeed in obtaining it even at the price of incredible ordeals and humiliations. Now no limitation is envisaged at all.

If the inventor is simultaneously the patentee, the amount of the reward and the terms of its payment are regulated by the corresponding contract for the right of use of the invention in accordance with the customary market practice of buying and selling licenses. If he has not become the patentee, during the term of effect of the patent (a maximum of 20 years) he receives from the employer a reward in the amount of not less than 15 percent of the profit, as well as not less than 20 percent of the proceeds from the sale of a license no later than three months after the end of each year, in which the invention was used, and not less than three months after the receipt of the proceeds from the sale of a license. In case of the sale of an invention abroad (the export of a product, the sale of licenses) the reward is paid to the inventor at his request in foreign currency. And there is another innovation: In case of the receipt of a patent in the name of an enterprise the patentee within a month from the receipt by him of the patent pays the inventor an incentive reward, which is not taken into account in case of subsequent payments, in the amount of not less than his average monthly wage.

In case of the evasion by the owner of the patent of the payment of the reward to the inventor for each day of delay a fine in the amount of 0.04 percent of the sum due for payment is imposed. The corresponding payments to the people, who contributed to the development and use of inventions, in the amount of not less than 30 percent of the profit for three years from the date of the start of the use of the invention are also envisaged. The authors of used inventions also have the right to additional living space (Article 36).

The provisions, which envisage a new structure of the management of the patent system in the country, are extremely interesting. The USSR State Patent Department (Gospatent), which operates outside subordination to the USSR State Committee for Science and Technology, as was the case earlier, is a part of it. The USSR State Fund of Inventions, in the competence of which the use of inventions, which have been turned over to the state, is. The USSR Patent Court, which was established by the Law "On the USSR Patent Court" and is called upon to protect the rights of inventors and patentees. The possibility of arbitrary actions of the experts of the patent department with respect to inventors has also been averted. The law envisages the openness of the process of examination and the possibility of the participation of the inventor or his representative in its individual stages. Strict deadlines of the examination of an application have been established (an examination—not more than 12 months, a reexamination—not more than three months).

The possibility of corruption among the officials and employees of the USSR State Patent Department is blocked by prohibiting them during the service life and for one year after it to submit applications for inventions, to acquire directly or indirectly the right to a patent, as well as to draw up for someone applications for inventions.

The transition to a market economy presumes an increase of the degree of openness of the Soviet patent system. It is interesting that the Decree on the Putting Into Effect of the Law on Inventions in the USSR, which was adopted by the USSR Supreme Soviet, contains a specific sequence of measures on the privatization (conversion to the patent form of protection) of inventions, which belong to the state, were registered not more than 20 years ago, and are protected by an inventor's certificate. This process should be completed by 1 July 1992.

The new law will certainly give rise to an ambiguous assessment. Several aspects of it remain not entirely clear and specific. For example, the structural grouping of individual articles and provisions, the definition of the concept "invention," the relationship of the terms "inventor" and "author of an invention," and the system of the training of patent experts, agents, and personnel of the Patent Court. However, as a whole the law in interconnection with other legislative acts on the protection of intellectual property, I am certain, will serve as an effective tool of the acceleration of scientific and technical and socioeconomic progress.

USSR-Japan Nuclear Safety Talks Make Little Progress

917A0215A Moscow RADIKAL in Russian No 29, 31 Jul 91 p 1

[Article by F. R.: "A Courtesy Visit"—first paragraph is RADIKAL introduction]

[Text] A discussion of the program of cooperation of the Japanese Atomic Industry Forum and the USSR Academy of Sciences in the area of the safety of atomic power engineering took place in Moscow.

As Vice President of the USSR Academy of Sciences Academician K. Frolov, who led the meetings, reported, in our country a program of measures on the safety of large industrial facilities was recently approved. A large part of this program is devoted to the safety of facilities of atomic power engineering.

A number of proposals on joint activity in such areas as the analysis of emergency situations, the assurance of the seismic safety of nuclear power plants, the development of systems of control under the conditions of an accident and methods of moderating its consequences, the construction of underground nuclear power plants, the development of methods of the mechanics of destruction as applied to the equipment of nuclear plants, the establishment of national laboratories for the study of the safety of nuclear power plants within the framework of the International Safety Institute, and others were submitted to the meeting with Japanese specialists.

The Soviet meeting participants gave reports on all this, which were listened to carefully by the Japanese, but did not evoke, so to speak, movement in the opposite direction. However, in the words of Prof. Yevgeniy Adamov, the coordinator of the program and director of the NIKIET, there is nothing surprising in this. In spite of the mutual interest in each other's scientific achievements—thus, our results, which were obtained in the area of the physics of reactors and reactor building, interest the Japanese, while their level in systems of the control of nuclear units and in the theory and practice of the reliability of electronic systems interests us—the representatives of the Japanese Atomic Industry Forum, while expressing official consent to the meeting, in their letter wrote frankly that they consider the forthcoming meeting a kind of "courtesy visit" and intend merely "to study the possibility of the expansion of subsequent cooperation."

In the opinion of Yevgeniy Adamov, such evasive expressions are connected first of all with the lack of settlement of political questions between the two countries, particularly the regrettably famous problem of the "northern territories." It is clear that joint nuclear programs are a very lengthy and expensive matter, so that the cautious and disciplined Japanese do not want to bind themselves to any serious obligations until the complete clarification of the political situation. Nevertheless, even information contacts—and the held meeting was the second—are of unquestionable use to both parties, expanding the group of participants and preparing the ground for future joint research.

KaSSR Academy of Sciences Confusion Over Budget Authority

917A0194A Moscow POISK in Russian No 24 (110), 7-13 Jun 91 p 3

[Article by POISK correspondent Svetlana Krymova under the rubric "Returning to What Has Been Published" (Alma-Ata): "Who Is at the Helm?"; first paragraph is POISK introduction]

[Text] "To the Helm, Academy!" is what the report (POISK, No 17, 1991), in which we informed the readers of the extraordinary decision of the Kazakh SSR Cabinet of Ministers of 29 March, was entitled. In this decree the Academy of Sciences for the first time in the history of its existence was commissioned to do that, with which officials of the republic State Planning Committee, which was eliminated at the end of last year, had dealt: to determine the amounts of financing in conformity with the assets allocated from the republic budget for the development of science in 1991. But on 8 May another decree, in amendment of the first one, was issued. In conformity with it the academy was dismissed from fulfilling the assignment given to it earlier, which was readdressed to the republic Gosekonomkomitet. What happened?

"For the development of science the republic allocated from its budget 82.2 million rubles [R]," Vice President of the Kazakh SSR Academy of Sciences Vladimir Okolovich relates. "It was necessary to distribute them in two directions. A large portion should have been used for the base financing of basic and applied research that is being conducted at various scientific institutions. While R25.4 million should have been used for the financing of republic scientific and technical goal programs.

"Immediately after the appearance of the March decree we established expert councils for the first direction. Academicians and corresponding members, who work not only at the academy itself, but also in the system of public education and health care, in the Supreme Soviet, and so on, became members of them. Inasmuch as the month's time, which was allotted to the experts, was too little for a detailed financial apportionment, we merely expressed our views on the scientific themes of ministries and departments. But for the second direction we established an expert commission, of which I was the chairman, and began to prepare proposals on programs. There were remarks on them, but the commission did not receive official protests and complaints. However, the representatives of the Committee for Science and Public Education of the Supreme Soviet and the republic Ministry of Public Education did not sign the final document. While after this the Cabinet Ministers faced us with a fait accompli, having transferred our powers to the Gosekonomkomitet.

"From the very start, after the appearance of the March decree, it was clear that the distribution of assets would not go swimmingly, for the money was allocated according to the most meager 'ration,' without allowance for the increase of prices. Consequently, there will be offended people in any case, no matter who distributes these assets."

As for the base financing of science, here, according to the assurance of V. Okolovich, the expert councils did not intend to carry out any "shakeup"—in practice they merely reviewed the themes. Thus, the expert commission "took a hand" only in the apportionment of finances among scientific and technical goal programs.

I admit, people who disagreed with the conclusion of the experts remain. I admit, there could have been both mistakes and a lack of objectivity. In such a case all the objections should be substantiated and submitted to the Cabinet of Ministers. But there did not prove to be any documents in this regard.

But without them it is incomprehensible on what basis the Cabinet of Ministers suddenly annulled its decree and canceled the work of great difficulty of tens of experts—leading scientists of the republic.

Of course, no one at the academy regards the distribution of money as its main task. This was merely a forced step during the transition period, until the Council for Science and Technology attached to the president was formed. But it, apparently, also strongly affected the people, who previously had engaged in distribution, but now have found themselves to be without work.

"Earlier we determined the amounts of financing," Yevsey Selitskiy, who worked in the department of scientific and technical progress of the abolished State Planning Committee, but now heads the department of science, innovations, and scientific and technical progress of the Gosekonomkomitet, told the POISK correspondent. "In the department I had a special subdivision, now it has been abolished.... Well, it is nothing, we will form it again—people remain."

Let us ponder: Who gains from these "lateral movements"? The departments of science of the State Planning Committee, the Council of Ministers, and the Central Committee of the Communist Party have been abolished. But "people remain," owing to whom the obsolete, it would seem, system is displaying the capacity for regeneration. And, however sad, at times scientists themselves contribute to this, "breaking up" science among departments and dividing it into academic, VUZ, and sectorial science! It is reaching the point of real confrontation. It is here that officials, who willingly assume the role of arbiters, are appearing: You yourselves, they say, cannot come to an agreement.

True, in recent times the hope has appeared that scientists all the same will be able to come to an agreement. On the initiative of the Academy of Sciences an expanded meeting of its presidium and the collegium of the Ministry of Public Education, on the agenda of which was the question of "increasing the efficiency and cooperation of the Kazakh SSR Academy of Sciences with the

higher school of the republic," was held. I want to believe that the integration of their efforts will help the idea of establishing the Council for Science and Technology attached to the president of the republic to be realized. It is contemplated as an intellectual headquarters, and it must not be allowed that due to someone's vanities and the isolation of scientists it would become a niche for people fond of "steering" science.

City of Dubna Declared 'International S&T Center'

917A0214A Moscow RADIKAL in Russian No 29, 31 Jul 91 p 1

[Article by Valeriy Kamnev: "Dubna Does Not Intend To Surrender"]

[Text] Recently the city authorities of Dubna and the leadership of the Joint Institute for Nuclear Research (OIYaI), which is located there, addressed to the President of Russia the request to grant their city a special status—the Dubna International Scientific and Technical Center (MNTTs). Boris Yeltsin satisfied the request, and at present the preparation of the appropriate documents is under way in committees. The first meeting of the working group, among the tasks of which is the development on the basis of the proposed concept of a full and detailed picture of what the new center will be, should be held in Dubna at the end of July.

"New" is, of course, put strongly. The Joint Institute for Nuclear Research—an outpost of domestic and international science—has had quite broad popularity in our country. Past governments tried to advertise well this really unique scientific center. Established and maintaining its existence with assets of the countries, which just recently called themselves socialist, the Joint Institute for Nuclear Research conducts basic research through the efforts of specialists of practically the entire world.

However, the breakup of the socialist camp and the most far-reaching economic crisis in the USSR, if not having put basic science of Dubna on the verge of ruin, at any rate gave rise to a large number of most urgent problems, with which in the present situation it is not clear what to do.

As Boris Starchenko, scientific secretary of the Joint Institute for Nuclear Research for scientific and technical information, stated, the institute today does not have the assets for the financing of major projects in the area of basic research, and, therefore, many Dubna scientists are working in "passive" mode.

"And it is a matter not just of money," Starchenko asserts. "The institute in general needs reorganization. The GDR has become nonexistent—but it was a member country which contributed its share to the financing of the Joint Institute for Nuclear Research. True, the FRG paid the contribution due from the GDR, and now intensive talks concerning further cooperation are under way between our board of directors and the FRG Government. In principle the German side is favorably disposed toward the idea of such cooperation, now it remains to understand whether it will be permanent or will be limited for the time being to the framework of the temporary three-year agreement. There are also grounds to believe that another change will soon occur in the list of member countries of the Joint Institute for Nuclear Research—Russia will be added to it as a separate state. And in general, the need arose long ago to revise the terms of our scientific alliance—the charter of the Joint Institute for Nuclear Research has not been revised in 36 years, it, of course, does not satisfy the requirements of the present situation. In the fall we intend to hold an extraordinary session of the commission of authorized representatives and to draw up a new charter."

But regardless of what the new charter of the Joint Institute for Nuclear Research will be like, the problem of the survival of basic science in Dubna, as throughout the country, is not losing its urgency. The union budget is empty, and it is unknown what crumbs of it will be turned over to Dubna physicists. The commercialization of science, a process that emerged as a response to the threat of death from starvation, is also not correcting the situation, but, on the contrary, is leading to the degradation and rapid degeneration of basic research. But Dubna is not only the Joint Institute for Nuclear Research, this is also a large number of highly efficient science-intensive works, which an additional misfortune—the sharp decrease of military orders—which left them with with an empty purse, befell.

In other words, the problem of survival worries not only and, perhaps, even not so much the Joint Institute as Dubna itself. Practically all the enterprises of the city in one way or another are connected with science. Among the 69,000 residents about 12,000 are scientists and engineers. The fate of Dubna is directly connected with the fate of domestic basic science. That is why the idea of establishing the international scientific and technical center originated in the "city-institute" bundle, moreover, the city proved to be the more active part of the tandem.

For the present it it still too early to say when the Dubna technopolis (or, more precisely, science city) will emerge and what it will be like—there is only the initial idea, ahead of which lies only an unpleasant clash with reality. Whatever the case there, in the opinion of Deputy Chairman of the City Soviet Executive Committee Aleksandr Rats, one of the initiators of the concept, the quickest implementation of this concept is the most realistic, if not the only chance to save Dubna science from collapse.

"The main thing in this idea," he said, "is to create in Dubna special conditions for our country, which for foreign investors, as in general throughout the world, are considered normal. It will be necessary to create a banking system that is different from ours and the corresponding infrastructure of telecommunications (here the space communications system is proving to be very useful); the establishment of an international education center and an information center will be required; it will be necessary to solve the problem with the supply with foodstuffs, commodities, and personal services—in short, there are a large number of problems, which it is necessary to solve in combination. Only then will the

conditions appear for the preservation and most active use of the intellectual potential of Dubna."

Management of USSR AS Mechanics Institute Criticized

917A0203A Moscow IZVESTIYA in Russian 29 Jul 91 p 3

[Article by Sergey Leskov: "The Catapult. How Archimedes' Law Works in Academic Surroundings"]

[Text] It is already difficult to picture the urban landscape without people of entirely decent appearance with posters on their chest. The history of the insults, which the person suffered from the administration at work, is usually retold on these posters. And there is nowhere for the person in despair to seek the truth, he is a burden to all instances and institutions. These social outcasts sit meekly, until late evening in crowded places, there are also many of them on Pushkin Square, near the building of IZVESTIYA.

In the depth of our soul we reassure ourselves: They fired for sure not the best people. However, acquaintance with the conflicts, which are now developing at the Institute of Problems of Mechanics of the USSR Academy of Sciences, forces one to admit that they are also perfectly able to put out the door the most capable specialists. And now I would not be surprised if I saw on the square on Pushkinskaya a person with the poster: "Lenin Prize winner seeks work. I will undertake the development of systems that surpass the world level." Perhaps, cooperative members will also throw him a little work....

The sharpest conflicts in academic surroundings flare up where there is still something for Soviet science to show. Does this not happen because of the excessive strain in pursuit of the world leaders? Outsiders gave it up as hopeless, but here the work is "overstraining." The scientists, of whom it will be a matter, are involved in one way or another with laser technology, of which we were always particularly proud, inasmuch as our only Nobel Prize for postwar research was "registered" precisely here.

In the past year or two quite a number of talented scientists have left the Institute of Problems of Mechanics. The most notorious scandals have been connected with "foreign countries." One doctor of sciences became a "defector" (and this is in our times!), another after an in-house "severe reprimand" preferred to sign a long-term and comfortable contract in the United States. A young candidate of sciences, all but with the brand of a spy and curses to his back, left for practical studies abroad. Evil tongues assert that he, too, will not return. But these got settled if only for a while. The situation of those people, who, in spite of the disfavor of the administration, are not about to go across the border and intend to do honor to science at home, is far more dramatic. It must be emphasized that it is not a matter of elderly people—it is a matter of scientists in their prime. The scientific skill of any of them is not doubted by anyone. D.M. Klimov, director of the Institute of Problems of Mechanics, spoke about the heroes of these notes as exceptionally capable, able specialists.

This admission, it would seem, should also exhaust the theme of the conversation. What else is one to judge? The skilled specialist is the thing of greatest value in science. The administration, and it has been given the powers for this, should day and night think about him and arrange things so that his creative potential would be revealed more completely. But in our conversation the executives of the Institute of Problems of Mechanics avoid this thought, apparently, on account of its insignificance. And this merely confirms that the theme of the realization of talent and consideration for it remains in our science in general, and at the Institute of Problems of Mechanics in particular, in the background. It is even impossible to say that a talented worker is regarded by the bureaucratic system as a hindrance. Now, he in general is simply not perceived by it. A nonentity. Until a person puts out something outstanding, the system does not look straight at him. And, perhaps, this law of bureaucratic management is most destructive in scientific surroundings, where exceptional individuals, the elite of society have been brought together by nature itself. This is not theorizing. Specific fates are proof.

N.F. Pilipetskiy, Lenin Prize winner, the founder and for 25 years the continuous manager of a laboratory that developed one of the most promising directions in laser technology. "Now this is real science!" President of the USSR Academy of Sciences G.I. Marchuk exclaimed when just three years ago he visited the laboratory of Pilipetskiy and enthusiastically described himself to the retinue of escorts the horizons of this direction. Now not only is Nikolay Fedorovich not the head of the laboratory, he has been "cut off" from the instruments, which were developed under this supervision, and cannot conduct planned experiments. The themes of the laboratory have been changed drastically. The Lenin Prize winner awaits with a bad feeling the fall certification and the further worsening of his situation.

V.I. Myshenkov is a recognized theorist. Suffice it to say that one molecular high-frequency laser in four, which is produced today in the world, is based on his scientific program. The biography of Valentin Ivanovich was published in the latest edition of *Who's Who Among Intellectuals*. During the past year Myshenkov won two all-union creative competitions—those of the Ministry of Defense and the presidium of the USSR Academy of Sciences—and received financing for the conducting of research that again promises to become priority research in world science. However, his own administration cannot stand Myshenkov. He has to conduct the research, which could constitute the honor of the Institute of Problems of Mechanics, on the side, for example, in joint authorship with Nobel Prize laureate A.M. Prokhorov. And even the order of the presidium of the USSR Academy of Sciences (the December order!) on the allocation to Myshenkov in accordance with the results of the competition of a subdivision on various (of

course, plausible) pretexts is being hampered, and the most promising work is actually at a standstill.

A.P. Seyranyan, a doctor of sciences, the author of many publications abroad, at international conferences supervised the work of a section. An international school on the theme of his research was organized two years ago in Italy, in the FRG they invited him to become a member of the editorial board of a prestigeous international journal. Only at his own institute does the scientist actually wander without work. More precisely, with work, which seems to no purpose to the management of the Institute of Problems of Mechanics, so that it grudges assets. Aleksandr Paruyrovich receives a meager wage, they assigned the doctor of sciences a humiliating position. The brilliant reputation abroad by contrast with bitter neglect at home perplexes him.

As Corresponding Member of the USSR Academy of Sciences D.M. Klimov, director of the Institute of Problems of Mechanics, explained to me, all these scientists were involuntary victims of...perestroyka. Here is the inability of Seyranyan to ensure the financing of his research. But this is necessary under the new conditions, under which academic institutions have now been placed. And the vanities of Pilipetskiy, but he lost the laboratory in a democratic way, at the will of the collective and by no means of the administration. And the unappeased careerism of Myshenkov, who is openly striving to become a chief.

In all the cases, as we see, the administration has nothing to do with it, circumstances interfered. Although the scientists themselves would argue in this respect. But it is not even a matter of this. For the "completely guilty" scientists are not shirking science, on the contrary, they are demanding normal conditions for work. They would give them, perhaps, the fixed minimum, as they gave earlier, as they are giving others. Although our science is incapable of great breakthroughs, it has been forced to drift slowly (while nearby they are carried on launches) to the desired shore, which, incidentally, when it is reached, proves every time to have already been made habitable by others. And all the same, I will repeat, it is possible to detect movement relative to still water. But the system is tolerable only to meek and absolutely loyal personnel, who are principled in moderate doses, having been faced with injustice, are willing to be silent and...to wait for the next chance to be sensibly silent. Our heroes, and the reason for their categorical nonacceptance by the bureaucratic system lies in this, did not want to be sensible. They are demanding justice on all corners, thereby threatening the equilibrium of the system. And it is such people whom this system squeezes with greater force than a large foreign body. Archimedes' law for academic surroundings....

Is it possible to seek protection against the system from the very system? Letters, statements, the going among offices—all is for nothing, it only turns out worse. There is an inconceivable number of chiefs of every rank at the Academy of Sciences, each is as if accountable for something and reports back to someone. But there is no one who would bear responsibility, in essence, for the most important thing in science—for the scientist. No matter at what doors the same Seyranyan knocked, there is no one to defend the scientist and to help him.... The researcher falls, like one of the heroes of Wells, into a lifeless abyss, where all calls for help are pointless and ridiculous. The system is monolithic, the entire structure of the Academy of Sciences is subordinate to one logic, in which there is no room for the problems of the individual.

I remember how M.V. Keldysh not only defended the talented mathematician V. Turchin against the "witch hunters," but during the most difficult period also contributed to the awarding of a prestigeous prize to the scientist. But for this it is necessary to be Keldysh. I do not imagine that at the institute Mstislav Vsevolodovich would have formed such relations with any of the associates as Klimov has formed with Myshenkov. Having despaired of finding support for his developments among the administration, Myshenkov accused the director of causing the state losses of many billions by neglecting his ideas. What explanation followed? "I am physically unable to be responsible for all directions in science," Dmitriy Mikhaylovich resentfully explained to me. "Let him appeal to my deputy, who is responsible for lasers. Or to Velikhov, he is in charge of them at the academy."

To send a person from office to office is the most that the system can do for him. And there is another common feature: Our managers, no matter what they manage, almost never openly declare their position and prefer to work behind the scenes and not to leave traces. The vagueness of one's personal position is also a position. For the manager is a symbol of the system, which denies the person, the individual not only in a subordinate, but among the chosen and favorites.

Is the forced careerism of Myshenkov not explained by the understanding of the fact that there is nowhere to expect help from and it is possible to overcome bureaucracy and heartlessness only if you yourself hold some administrative post? And is the creation by him at the institute of a branch of the Nauka Voluntary Society, which can conclude independent contracts with clients and by this incredibly annoys the administration, not explained by this? If you follow this line of thinking, it is possible to say that such an abundant appearance of new associations, which are an alternative to the Academy of Sciences, is explained by the very same reason—by its isolation from the problems of a specific scientist and by the getting stuck on purely administrative problems. Yes, far from all the attempts are successful, some are simply anecdotal. But they are not running from the good—they are running from trouble. They do not begin to lay out new gardens, if the old ones are bearing fruit....

Science is a commodity sold by the piece, here everything is based on the uniqueness of the separate individual. Enormous institutes, these gigantic academic

megapolises, are incapable of significant creative accomplishments and are simply not meant for this. Owing to the size itself at such institutions the administration assumes self-sufficing importance, everything else, including science, takes a back seat. At a large institute, and we do not have others, the scientist feels like Pushkin's Yevgeniy in front of the Bronze Horseman....

But world science knows other methods of organizing science—far more fruitful methods. In the 1920's Rutherford had at the Cavendish Laboratory only 30 staff members. At that time Bohr worked at his own Copenhagen institute with a staff of seven people. Only 20 years after his historical work did Einstein get a secretary. At small and extremely mobile laboratories namely creative motives are in first place, the bureaucratic element is reduced to a minimum. The functions of management reduce exclusively to providing all staff members with the very best conditions for work. Here the organization is subordinate to the interests of the individual, and not vice versa, as happens, unfortunately, in our country. At small laboratories the director himself also remains a researcher. Kapitsa, who went through Rutherford's school, said at the presidium of the USSR Academy of Sciences back in 1943: "Only when you work in a laboratory yourself, is it possible to achieve real results in science." Present directors, as is known, are not adopting this experience, it is far easier to give scientists orders....

Everything now happening at the Institute of Problems of Mechanics of the USSR Academy of Sciences illustrates a fundamental property of Soviet science—its fundamental inability to be combined harmoniously with the individual nature of scientific creativity. But for long decades all our efforts were aimed at the development of precisely Soviet (this was invariably emphasized) science. In a sociological study, which was conducted 10 years ago on the pages of LITERATURNAYA GAZETA, the fact that a more and more significant percentage of Soviet scientists are inclined to collective labor and ideologically reject "individual work" for lack of promise, was emphasized as an epoch-making achievement. But whereas gypsies can roam the steppes in a noisy crowd and in so doing maintain their existence comfortably, individuals all the same make science. "I am confident that the human individual, and not the collective, and the elite of the country, and not its common people, decide everything, and to a significant extent its revival depends on the laws of the appearance of great individuals, which are unknown to us," V.I. Vernadskiy wrote back in the early 1920's, having keenly perceived the regrettable trend of the deintellectualization of our society and the decline of culture.

But to this day the main, decisive principle of the development of Soviet science is movement in regular columns. It always struck me that among Nobel Prize laureates there are two, at the outside three coauthors, in our country any work, which has been commended with a modest prize, is performed by an imposing collective under the supervision of some omnipotent academician, who, incidentally, is not very well known beyond our borders and within these borders as well.

Here it turns out that in recent years, when opportunities appeared for this, more and more brilliant creative individuals, and not only, incidentally, in science, have been setting out across the border. The desire is entirely natural—to engage henceforth in not Soviet, but normal science. "Soviet" science is not nonsense, as people like to say now, this is a sad reality. And, I think, I would not be disclosing a secret if I were to say that one of the heroes of our notes is now drawing up documents for the conclusion of a long-term foreign contract. He is leaving on account of science—he is not going to sit on Pushkin Square.

But is it possible in our country to expect the revival of science? Here is the opinion of Academician D.G. Knorre: "After a while there will simply be no one to work in large-scale science. Such devastation of basic science, about which Lysenko did not dream, is now occurring." Is it an exaggeration? Time will tell. But here is an example from history. Given the greatest consideration for the science of Germany, which before the war was the leader in the field of physics, decades were needed for a Nobel Prize laureate to appear there again. In our country the oppression, to which scientific freethinking has been subjected, has been far more severe and prolonged....

Growing Role of Small Technical Enterprises Noted

917A0205A Moscow RADIKAL in Russian No 28, 24 Jul 91 p 3

[Article by Dmitriy Demchenko, scientific associate of the Analytical Center of the USSR Academy of Sciences: "A Small Ship Asks Deep Waters"—first paragraph is RADIKAL introduction]

[Text] Small innovation enterprises—scientific and technical cooperatives, centers of the scientific and technical creativity of youth, ventures, incubator firms.... How many are there? Where? How do they operate? The state policy for small innovation enterprises. The rules of the game: What was—what will be. Dmitriy Demchenko, a scientific associate of the Analytical Center of the USSR Academy of Sciences, gives an account.

In the last four years a number of legislative acts, which legalized the entrepreneurial sector of the economy, including in the scientific and technical sphere, have been passed in our country.

Scientific and technical enterprise is represented today mainly by small (up to 100 people) companies of various organizational legal forms and types of property.

Scientific and technical cooperatives, centers of the scientific and technical creativity of youth, and joint ventures with foreign partners represent the majority of small innovation enterprises (MIP's). In 1990 individual

enterprises, companies with limited liability, and joint-stock companies appeared. But their number for the present is small.

Scientific and technical cooperatives (NTK's) have existed since 1987, but their number has increased appreciably since the middle of 1988, when the law "On Cooperation in the USSR" was passed. According to the data on 1 January 1991, 12,600 scientific and technical cooperatives, at which 312,600 people (including the holders of more than one job) worked, were operating in the USSR. The sales volume of cooperatives in 1990 came to 4.5 billion [R].

Scientific and technical cooperatives, in turn, are divided into planning and design and introducing cooperatives (their share in the total number of scientific and technical cooperatives comes to 39.4 percent, in the number of employees—46.0 percent, and in the sales volume—32.9 percent), scientific research cooperatives (the corresponding indicators are 29.1 percent, 29.3 percent, and 28.6 percent), and cooperatives for the development of software and the rendering of information services (31.5 percent, 24.7 percent, and 38.6 percent).

Centers of the scientific and technical creativity of youth (NTTM's) operate on the basis of the principles of enterprise and belong to public organizations (until recently the centers of the scientific and technical creativity of youth were formally under the aegis of the All-Union Komsomol Central Committee). At the beginning of 1991, 750 centers had been registered. The amount of work performed by them in the first three years of operation (1987-1989) exceeded R1 billion.

The first joint ventures (SP's) with foreign partners appeared in 1987. As of 1 January 1991, 79 joint ventures, which are engaged in scientific research, design, and introducing activity, operated in the USSR. This is approximately a third of the number of registered joint ventures, which in accordance with the constituent documents intend to conduct research and development, to sell and buy licenses, patents, and know-how, and to develop, introduce, and produce new instruments, technological systems, machines, and equipment.

Thus, today in the USSR there are more than 13,000 operating nonstate innovation enterprises, the majority of which fall into the classification of small enterprises. More than 300,000 people work at them. The sales volume came in 1989 to about R4 billion.

Small nonstate enterprises are usually regarded as independent firms of the entrepreneurial type, which are free in the making of economic decisions—on the directions of activity, partners, sales markets, and prices for their products.

In reality this is not the case. Until recently a policy, in accordance with which only an auxiliary role was assigned to private enterprise with respect to the state economy, was pursued in the country with respect to the nonstate sector. Therefore, it is not surprising that to this day private enterprises resemble single islands in the ocean of the state economy. Their basic life support systems (supply, lending, marketing) are hooked up to the state sector.

According to the data of a survey of operating scientific and technical cooperatives, 67 percent of them do not have a guarantor, that is, were established under state enterprises and scientific research institutes. In 1989 scientific and technical cooperatives sold 93.2 percent of their products to state enterprises and organizations, 2.3 percent to private individuals, and 2.2 percent to cooperatives. In the same year scientific and technical cooperatives acquired from state enterprises 46.9 percent of the raw materials and materials. Of the scientific and technical cooperatives, which lease equipment, 87.5 percent use the services of state enterprises, including 58.3 percent that use the services of their guarantors. In all 56.3 percent of the cooperatives, which are experiencing a shortage of production facilities, lease them from state enterprises, including 46.5 percent that lease them from their guarantors.

Such a close connection of cooperatives and other small enterprises with the state sector often leads to their loss of several significant traits of free enterprises. In difficult situations they are able to solve financial problems with the assistance of guarantors and state enterprises that are clients, by increasing the prices for products and services and obtaining credits (for example, for prepayment) in various forms, not to mention the conclusion of fictitious contracts. Such a practice distorts the "market" characteristics of small innovation enterprises.

Moreover, small innovation enterprises operate under the conditions of a shortage of the majority of products made by them and many types of services that are rendered by them. The shortage makes it possible to shift one's own problems onto the shoulders of consumers, by increasing the prices and decreasing the sales volumes. As a rule, it is not a matter of competing for a client (customer). As surveys of executives of small innovation enterprises show, rarely does anyone complain of a lack or shortage of demand.

The first small innovation enterprises, like nonstate enterprises of other sectors, rushed first of all into the economic niches not occupied by the state sector. In the sphere of research and development scientific and technical service became such a niche. One of the most serious diseases of the Soviet economy—megalomania—also did not pass over the state system of science and technology, where there are almost no large organizations that perform auxiliary, but extremely important functions, for example, the provision of intermediary, information, consultative, specialized engineering, and other services.

Today the majority of small innovation enterprises have not yet formed a material and technical and a financial base for long-term growth, and that is why immediate

tasks dominate over strategic tasks. According to the results of surveys of executives and specialists of cooperatives and centers of the scientific and technical creativity of youth, the most urgent problems, with which they have occasion to be confronted, are the organization of material and technical supply and the leasing (buying) of premises or parcels of land for capital construction for the accommodation of production capacities and management personnel.

The majority of small innovation enterprises are experiencing a shortage of original capital. For the most part small innovation enterprises are engaged in intermediary activity or the introduction of innovations that were developed at state scientific research institutions.

The aspiration to develop independently new products and technologies for the present is being displayed quite rarely. This is also understandable. Such activity is very labor-intensive, while the expenditures on it are recovered over a long time, and no one can guarantee the obtaining of commercial results.

A large portion of the small innovation enterprises of all types operate in the sphere of information science and programming—they sell imported computer hardware and peripherals, engage in their service, the development of software and the adaptation of already existing software to the requirements of the client, the provision of the corresponding intermediary and consultation services, and so on.

It is not worth underestimating the importance of intermediary and introducing activity. Owing to small innovation enterprises to a certain degree it was possible to fill the "gap" existing in the country between science and production and to compensate in part for the shortcomings of the state scientific and technical system. Their contribution to the computerization of the country is appreciable.

Small innovation business under the conditions of the market, undoubtedly, needs the support of the state and large companies. Science-intensive venture firms in western countries receive substantial assistance from large industrial companies and venture capital organizations—financial, organizational, and technical assistance. But the interrelations of firms with industrial giants and venture capital funds are fundamentally different than in our country. While receiving start-up capital and other support, which is necessary for the start of their business, venture firms subsequently can count only on themselves. Only after demonstrating their viability under the conditions of the market can they seek additional financial subsidies.

The analysis of the peculiarities of small enterprises makes it possible to draw the following conclusion: Under the conditions of a shortage economy, when a close connection of small innovation enterprises with the state sector exists, the regulation of scientific and technical enterprise by means of tax and credit policy (that is, by indirect methods) is ineffective. Until the tax burden and the rate of loan interest exceed common sense, enterprises will hardly sense changes. Noncost factors—the availability of premises, material resources, and others—play a far more important role.

Today state assistance to small innovation enterprises is being giving primarily in the form of tax and depreciation privileges. A system of union, republic, and regional funds for the support of small enterprises, of which lending on easy terms to small business will be the basic function, is now being formed with assistance of the state. The funds are conceived as independent commercial organizations that are oriented toward the derivation of a profit. Allocations from the state budget and local budgets will make up only a small part of their capital.

As a whole state policy in the area of small enterprise, including scientific and technical enterprise, remains contradictory and inconsistent. Short-term fiscal interests as before prevail over the strategic tasks of the development of a powerful entrepreneurial sector. State policy is aimed primarily at the permitting of small enterprise, but not at its support and stimulation. Moreover, due to the lack of coordination (substantive and chronological) of its various directions it is often not so effective. On the one hand, calls for the stimulation of entrepreneurial activity are being heard and the corresponding legislative acts are being passed and, on the other, steps, which create for such activity an unacceptable economic, political, and moral psychological atmosphere, are being taken.

Comprehensive material and technical, financial, information, procedural, and expert assistance to small firms, which are being newly established, and beginning entrepreneurs should be a priority task of the state. Here the experience of developed countries of the West is particularly valuable.

The establishment of incubator firms, which make available to beginning entrepreneurs premises, equipment, and financial assistance on the condition that these investments will be compensated for in case of the commercial success of the new enterprise, can have the greatest impact under present conditions.

The establishment of a securities market is also necessary for the development of venture enterprise. This makes it possible to use the method of financing small science-intensive enterprises, which is most prevalent in developed countries—the investment of the relatively redundant capital of large enterprises and individual accumulations in the shares of small firms with the mediation of venture capital companies, partnership funds, venture pools, investment companies, and pension and insurance funds.

So that the restructuring of the ossified scientific and technical system would not be that painful and the problem of the unemployment of scientific and engineering personnel would not be too acute and in order to actually expand the range of goods and services and new

technologies and ideas, the state should formulate a thought out policy on the support of the small science-intensive and engineering firms that are operating in the country.

Debate Heats Up Over Intellectual Property Bill

917A0212A Moscow POISK in Russian No 26 (112), 21-27 Jun 91 p 1

[Article by Lyudmila Vasina: "To Own or Not To Own"—first paragraph is POISK introduction]

[Text] The putting of the finishing touches on the law "On Scientific Intellectual Property and the Strengthening of Its Protection" is under way in the USSR Supreme Soviet. Unexpectedly this draft evoked a storm in parliament. Will the next debates be more peaceful and productive? Hardly. In any case, the opinions on the law as before are categorical, while the assessments of its quality are polar.

An uninitiated person would say: The law on intellectual property is a law for scientists. But who, if not they, is to protect him? However, not everything is that simple. The All-Union Scientific Research Institute of Soviet State Building and Legislation, the Institute of State and Law, and experts from Moscow State University spoke out against the draft law. Scientists who are USSR people's deputies proved to be irreconcilable critics of the draft. Among them are Academician Yuriy Ryzhov, chairman of the parliamentary Committee for Science, and Doctor of Juridical Sciences Yuriy Kalmykov, chairman of the Committee for Legislation. But let us proceed in order.

Deputy Prime Minister Nikolay Laverov submitted the law to parliament. The goal of the law, he said, is the creation of the most favorable conditions for the development of science in market relations. The drafters of the document based it on the Convention, which established the World Intellectual Property Organization and was signed in Stockholm on 14 July 1967.

The draft recognizes that the powers of use, possession, and disposal apply to intellectual property. That is, the owner can sell it or even make a gift of it. But who is the owner? In the opinion of the authors of the draft, not only the creator of intellectual wealth himself, but also the scientific organization, or else the state organ? In what cases? In case of the existence of a contract or an agreement.

In the conviction of the authors and the supporters of the draft law, it protects the rights of the creator of intellectual values. The rule that the reward will also be based on a share of the revenues, which are derived from the results of the creative idea by the scientific organization or enterprises, Laverov stressed, is fundamentally new.

Immediately after the report of Laverov the members of parliament were able to evaluate the heat of passions over the draft. The Supreme Soviet chairman himself with the first minutes of debate considered it necessary to indicate his position. "I recently received a letter from a group of scientists, who had transferred from one scientific research institute to a cooperative," he said. "They warn the Supreme Soviet that we not dare pass this law.... We, the members of a cooperative, will not allow this. Here is such a position. They are acting openly. I was even astonished by such insolence."

However, this allegorical warning also did not stop the opponents of the draft law. Which is also not surprising: Both Yuriy Ryzhov and Yuriy Kalmykov are not among the deputies, who, having held their breath, catch the "signs" of the chairman. They had fundamental objections to the proposed draft law.

The first and all but the main one: the very subject of the draft law. Is it possible to single out from all the subjects of intellectual property the ones, which are not protected by prevailing legislation or by the legal acts that are now at the stage of drafting?

Is it possible to place an equal sign between spiritual and material wealth? And is it legitimate to speak about the possession and disposal of intellectual property on the ordinary material level? Here, for example, is the point of view of Yuriy Kalmykov and the committee he heads: "In an hour-long report...they tried to convince us that it is possible to apply the norms on the right of ownership to the products of spiritual activity. So, I want to ask you in an everyday way: Is it possible to own a product of spiritual creativity, let us assume, a song, which a composer wrote and which is performed by an indefinite group of people? This is not my jacket, glasses, that is, concrete things...."

Moreover, the draft submitted to parliament, it appears, is at variance with the documents that have already been passed.

And, finally, its opponents are certain: The draft law does not protect the creator of intellectual property.

"I believe," Kalmykov summarized, "that it will not protect either the author of an invention or the author of an efficiency proposal. On the contrary, it puts these people in a worse position. If an organization becomes the owner, this means that both design bureaus and scientific research institutes will oppose the issuing of a patent to these people in case of their creation of an invention. I believe that this law does not protect the interests of creative workers."

So that the reader could appreciate how polar the opinions were during the debates, I will venture a few quotations.

N. Karlov, deputy chairman of the Committee of the USSR Supreme Soviet for Science: "Such a law is needed precisely like manna from heaven...."

O. Chernyshov, deputy chairman of the Committee of the USSR Supreme Soviet for Culture: "This draft law, it seems to me, protects the departmental interests of administrative state structures and does not protect the creator himself."

So, is one to endorse the concept, which was submitted by Nikolay Laverov, or to abstain? Is one to pass the draft law in the first reading or to insist on modification? More than 300 people's deputies took into account the doubts voiced during the debates. It was decided to continue the work on the draft law in the committees and commissions.

Report on Conference on Science's Transition to Market Economy

917A0217A Moscow RADIKAL in Russian No 29, 31 Jul 91 pp 1, 6-7

[Interview with Doctor of Economic Sciences Sergey Glazyev: "The Death Pangs of State Science"—first paragraph is RADIKAL introduction]

[Text] The international conference "The Management of Science and Technology Under the Conditions of the Transition to a Market Economy" was held in Moscow. This was the first scientific forum, at which the most prominent specialists in the world in questions of the management of science gathered and at which they were able for the first time to speak frankly about the problems of our science. Doctor of Economic Sciences Sergey Glazyev tells about the goals and results of this forum.

[Glazyev] The International Center for the Study of Economic Reforms, the International Institute of Applied Systems Analysis, and the State Committee for Science and Technology, which was the initiator of an international project with a similar name, held the conference. The conference participants set themselves quite serious tasks: to give an analysis of the state of Soviet science, to examine the mechanisms of its functioning, to help foreign specialists on the basis of reliable and as complete as possible information to understand the formed situation and our problems, and to create the conditions for further dialog. We succeeded in inviting 13 foreign participants, among them were such well-known people as Prof. Richard Nelson of Columbia University (the United States)—the patriarch of economic science and the most prominent specialist in questions of scientific and technical development, Prof. Richard Levin, also a well-known specialist in the area of the management of research and development and dean of the Economics Department of Yale University (the United States), Prof. Luke Soute, director of the Dutch Institute of Science and Technology, Prof. Ben Martin of the University of Sussex (England), Professor Peck of Yale University, now the director of the international project "Economic Reforms and Integration." These, perhaps, are the key figures.

[RADIKAL] The impression is gotten that in our country no one for the present can understand in detail what is happening with science. Did the participants in the conference, which lasted only three days, really succeed in accomplishing this task?

[Glazyev] Indeed, it is very difficult to understand—there are no appropriate statistics, while those that exist are not entirely suitable, inasmuch as they are not oriented toward the specific nature of the transition to a market. For example, two opposing opinions on the financing of science exist: Some people believe that on this level everything is all right and, in spite of the collapse of the union budget, money for science was allocated in the amount planned. The leadership of the State Committee for Science and Technology fulfilled its tasks, which was also proudly reported. But in reality under the conditions of 19-percent inflation last year and 170-percent inflation during just the first quarter of this year (and there is the suspicion that scientific instruments are increasing in cost even more rapidly than the rate of the remuneration of labor), it is necessary to talk of a substantial decrease of spending on research and development during the last year.

At the conference we discussed the state of affairs in three fields of science: computer hardware and software, metallurgy, and chemistry.

[RADIKAL] Is this a random choice?

[Glazyev] Partially. We directed our attention to people who could quickly prepare the appropriate information. But we also had the idea of giving a certain balanced picture—of describing the area of high, medium, and low technologies. For example, metallurgy throughout the world is on the decline—the volumes of production and research and development are decreasing. The computer sciences are the other way round. While chemistry is in an intermediate state. And research and development in this fields are organized differently.

Moreover, reports were also prepared on technology transfer, on intellectual property.... As a whole our project is intended for the rationalization of decision making. Our task is not only the formulation of recommendations, which we have already done more than once, but also the training of managers, who make decisions while guided at times by their own and often distorted notions.

What problems did we try to single out when analyzing the situation with science? The first one is to attempt to understand what is happening with scientific organizations. This question does not reduce just to financing. It was important to determine for whom they now work, where they deliver scientific and technical products, who their consumers are, what kind of ties they have with commercial structures, what the situation is with the obtaining of the necessary information and with the drain of their own information and personnel. In other words, how they are living during the transition period. It is clear to more or less everyone that the situation is grave, but they appraise the degree of gravity differently. In my report, which was heard at the conference, an attempt was made to trace a clear chronology of the crisis. In 1988 a golden rain fell on science. In 1989, when the Ryzhkov government became greatly worried about the growth of wages, this flow decreased substantially. Whereas in 1988 the spending on science increased by 1.6-fold, the next year it increased by 25 percent, in 1990 the increase ceased altogether, while this year for many reasons a sharp decrease has occurred. After a relaxed existence during two years of reform science found itself on starvation rations. But people had already become accustomed to a good wage and at many

institutes to easy money. The sharp decrease of the spending on science, particularly sectorial science, produced a shock effect.

We also tried to understand how nonstate science is organized. The number of nonstate enterprises, their expenditures, and the volume of output are increasing exponentially. We presented all the available statistics. If you judge just from them, a bright picture appears. But if you look into it, it will turn out that nonstate organizations use the state intellectual product, resources, which they buy for a song, the same people, premises, and so on. In reality they are a kind of appendage of the state sector. Therefore, if it collapses, this appendage will also collapse in its wake. Of course, the situation is different in different fields. In order to get adequate ideas of these structures, it is necessary to conduct large-scale studies, because thus far hardly anyone has been keeping a record of these structures. The State Committee for Statistics is not gathering statistics.

The next problem that interested us concerns what changes may occur in the organizational structure of science. Very many different wild ideas exist in this regard. People who are engaged in scientific management are expressing them. They have to retrain themselves on the move. They have thus far never thought about such questions as the right of ownership at the scientific organization, the competitive ability of products....

[RADIKAL] In essence, we did not and do not have professional scientific managers. Scientists, who took administrative posts and have been forced to settle these questions somehow, have to deal with the questions of management. Some are doing better, some are doing worse, but special knowledge, skill, and, finally, a taste for such activity are needed here....

[Glazyev] In fact it is necessary to change completely the notions of the world. In our country it is possible to distinguish two types of scientific managers. These are, as you said, scientists who due to the lack of opportunities to engage effectively in science became administrators....

[RADIKAL] Or real scientists who were forced to become them....

[Glazyev] On the other hand, the process of the formation of bureaucrats from science took place. Whereas in the West a scientific career and an administrative career are different things, in our country they became one. But inasmuch as science was immersed in the hierarchical structure of directive management....

[RADIKAL] But why do you say "was"?...

[Glazyev] Yes, and to a significant degree continues to exist under the same conditions, the choice of people was also made accordingly.

Criteria of self-regulation, such as exist in the world scientific community, where a scientist works for the benefit of his own authority, which is determined by the appraisal of his colleagues, did not exist in our scientific community. In our country it was a question not of scientific authority, but of the opinion of management and of the ability to follow its wishes. The normal mechanisms of the functioning of the scientific community were blocked. As a result departmentalism, when people are rated subject to how they can implement departmental priorities, emerged in science. This applies to not only sectorial, but also academic science.

At the conference a dispute even flared up between those, who pointed out the bureaucratization, departmentalism, and mafia character, and the opponents of such an assessment. By a mafia character it was meant that the amounts of financing were determined by the influence of some people or others and by their intimacy with the leadership. Such was the case in our country with microelectronics, when ideas of our incredible achievements in this field were put into the head of the ignorant leadership and colossal amounts of money, including in currency, were allocated for this.

[RADIKAL] But strictly speaking, what was the subject of the dispute? These are, in my opinion, obvious things.

[Glazyev] As for microelectronics, here there is actually no need to dispute. There are a mafia character, departmentalism, copying, more precisely, as they say, "unsanctioned borrowing" as the basic type of introduction of scientific and technical achievements, deception, and all the rest. The opponents claimed that this is a poor example, it does not characterize the situation in science in general. In other fields in our country not everything is that bad.

[RADIKAL] In this dispute I side with those who consider microelectronics a quite typical example.

[Glazyev] I also believe that this is a characteristic example. But this is not simply a theoretical dispute. A number of very serious practical consequences follow from it. If our scientific community had engaged for the most part in imitation, its competitive ability on the world market would prove to be very low and the hope that our military-industrial complex would enable the country, by carrying out conversion, to be integrated in the sphere of high technologies under the conditions of the world division of labor, would be shattered like a myth. It is very important to realize where we are actually competitive.

[RADIKAL] Unfortunately, degradation has also affected the sphere of the military-industrial complex, where high technologies are actually concentrated. Therefore, it is not worth counting very much on them.

[Glazyev] Yes, this is evident from microelectronics, which also belonged to the military-industrial complex. Hence, too, the secrecy that exists to this day in these spheres. Often it is explained only by the aspiration to

conceal failures and not to allow the colossal expenditures, which were made for the sake of copying obsolete foreign models, to be made public.

The appearance of our country on the world market may prove to be disastrous for entire directions of science and technology. It is a matter not only of the competitive ability of products, but also of the extension to the country of international legislative acts on the protection of intellectual property. Many firms are already now faced with the fact that they cannot appear on the world market, since their products do not have patent purity. This question is very important, inasmuch as it is necessary to determine the priorities and the niches that are free under the conditions of integration.

It is necessary here to overcome the stereotypes that have formed, for example, at our Academy of Sciences, among its leadership, which believes that it is necessary to conduct research along the entire front. World experience shows that no country adheres any longer to this policy. It is impossible and unprofitable. In the demands "to conduct research along the entire front" I personally see the aspiration to defend no matter what the financing of directions that have already actually formed and to stand in the way of their objective evaluation. We, for example, when developing the concept of the restructuring of the management of scientific and technical progress were faced with the colossal pressure of several academicians, who insisted that this trend be preserved. Although, it would seem, the situation is obvious: Either we retain some directions or in our country everything in general collapses. Now at the Central Institute of Mathematical Economics on the order of the State Committee for Science and Technology we are performing special work on the methodology of selecting priorities.

If we return to the conference, we will obtain many valuable conclusions from both the Soviet and the foreign participants. As examples I will cite two nontrivial conclusions. The first concerns sectorial scientific research institutes. It is well known that they existed in our country separately from enterprises and served entire sectors. These enormous organizations now, under the conditions of the disintegration of ministries, have been forced to change their orientation. Against the background of the market euphoria among the executives and associates of these institutes ideas about the sale of their scientific and technical products are emerging. Such original ideas as the establishment of a technology exchange are appearing. Many organizations already see themselves as sellers. But during the conference information that was unknown until now in our country was learned: An overwhelming portion of industrial science in the world is organized within firms—from 80 to 95 percent. This is not by chance. There are very serious difficulties in selling the results of research and development. First, they are conducted, as a rule, for specific clients, consumers, and organizations. The costs for the transfer of technology from one organization to another are very high. Therefore, they are not bought on the market. Second, it is very difficult to monitor the costs. When you want to sell a technology, it is unclear what its real cost is. Let us assume that you did a job in accordance with an order, but here obtained an incidental result which may prove to be a hundredfold more valuable than the basic result. Therefore, the client prefers to place an order with "his own people," in order to receive all the profits. Lengthy, tedious, and exhausting negotiations are conducted in order to conclude such a contract. Even if a transfer of technologies from one firm to another occurs, it is not by selling, but by the establishment of long-term contacts on technology transfer. Now the dominant form of technology transfer on the world market is barter. Therefore, attempts to organize the sale of technologies are very naive. But in our country this idea is becoming predominant in many minds. I personally know of several undertakings on bringing Soviet technologies to foreign markets. Everyone takes an interest, but no one buys. Of course, it is possible to sell something at low prices. For example, the Japanese steel industry grew up on Soviet technologies. But one must not lean toward this.

We need to strive for the formation of scientifically and technically strong firms, which would unite both production and science and could compete on equal terms on the world market.

The second problem, with respect to which even a dispute developed at the conference, concerned intellectual property. The principles, which were made the basis for the draft on intellectual property, which has been submitted to the USSR Supreme Soviet, were utterly and severely criticized. A kind of market euphoria also exists here: Everything, they say, should be protected and sold. This is on the one hand. On the other, the protection of everything, up to formulas and methods, in short, what usually in the scientific community is in common use, is needed. One of our speakers from the Institute of Economics of the Siberian Department of the USSR Academy of Sciences cited the following example. The board of directors decided to take a look at intellectual property at the institute and to understand what belongs to whom. Of course, nothing came of this venture except swearing and conflicts.

The protection of intellectual property, of course, plays a huge role in the stimulation of scientific activity. When a scientist has the opportunity when appearing on the market to obtain monopoly rent, a superprofit....

[RADIKAL] Rubik's Cube....

[Glazyev] Approximately. But this profit is far from always ensured on the basis of laws on the protection of the intellectual product. Often firms decline legal protection and avail themselves of, for example, a commercial secret, simply the opportunity to appear on the market first. We are trying in this matter to be holier than the Pope. Even the application of the legislation already existing in the world, which is far less stringent than what we are proposing, is also a difficult question. As far as I known, Brazil to this day is persistently denying America

the extension of their legal protection. Of course, the Americans are exerting strong pressure, as they are, for example, on us to extend the legal protection of software to the USSR. This will turn into huge losses for Soviet users. It is necessary to proceed not from abstract market theories, but from the real interests of the country and to visualize clearly that the protection of intellectual property cuts two ways. Its creates stimuli and facilitates the entry into our market of foreign partners, but is an obstacle in the spread of innovations and the cause of real harm. The programs, which we now use, were practically all illegally imported into the country and copied. If you imagine that legal support for software were introduced in our country starting tomorrow, I, for example, would have to pay huge fines for the programs in my computer.

[RADIKAL] Are there real apprehensions that such support will be introduced?

[Glazyev] What is more, Gorbachev has already pledged to introduce the legal protection of software in the USSR, and the Americans pictured this as one of the terms of most favored nation treatment for the USSR in foreign trade. But to me personally it seems that, if you calculate the harm from the introduction of protection for software, it will exceed the revenues from the introduction of most favored nation treatment in trade. Although if we look five to seven years ahead, it is possible to hope that as a result we will obtain a civilized software market. Provided that you do not hit the user so hard now that he will never recover and our products will never appear any more on the market.

Within the project we will not only engage in the formulation of general recommendations and the study of the problems of our science, but also conduct an examination. For example, there is the understanding to set up a working group of Soviet and foreign specialists, which would analyze the draft of the law on intellectual property. This examination in any case will be very useful. Good draft laws, which would not require fundamental revision, should be submitted immediately for consideration by parliament. For example, when the draft of the law on invention activity was submitted to the USSR Supreme Soviet, simply a critical situation formed. First, they discussed it for a very long time. Second, they almost passed it in an absolutely unacceptable wording, when under the influence again of wild ideas about the market the active lobby—a handful of inventors—wanted to push through wording that would have made job-related inventions in the USSR impossible. They insisted that exclusive right to the invention be given to the author regardless of where he made this invention and for how much money.

Nowhere in the world does such a thing exist. From the very start I participated in the work on this draft law and argued all the time with these people. But it was impossible to convince them. They were guided by some absolutely mistaken ideas about human rights. Throughout the world invention became long ago a routine production activity. For example, the expenditures on research and development in the spheres of high technologies are greater than the capital investments. The bulk of the personnel of firms are engaged in research and development, that is, in the search for new technical solutions. I conclude a contract and take a job to develop inventions, which, of course, belong to the employer. The success and prosperity of many western firms are based on this.

During the discussion of the draft law a very dangerous situation arose, when absolutely unacceptable wording was introduced in the fundamentals of civil legislation and they adopted it on first reading. Much effort was required to change the wording to more rational wording.

Another legal aspect was discussed at the conference. Many scientific executives are now advocating the introduction of the contract form of the hiring of scientific personnel. And they are demanding that the corresponding legislation be introduced. Our foreign colleagues are amazed: Why do you need such legislation? A contract is concluded, and that is all. It is another matter that it is necessary to make the corresponding amendments in labor legislation. Without this it is impossible to introduce the contract form. Support you concluded a contract for a year, and upon its expiration they do not want to renew it. You can appeal to the court, and such a decision will be recognized as illegal in accordance with prevailing labor legislation.

Foreign colleagues greeted with great interest the discussion of all these questions at the conference and confirmed their willingness to participate further in the project. For example, during the next conference, which we plan to hold at the International Institute of Applied Systems Analysis in Vienna, our colleagues will state their recommendations with respect to the reorganization of Soviet science.

[RADIKAL] Honestly speaking, today in our country these questions worry hardly anyone. And if you talk about priorities, the reorganization of science does not rank with the priority tasks.

[Glazyev] Yes, I noticed this from contact with the authors of different kinds of economic programs for the saving of Russia and the country as a whole. Each time you are faced with the fact that they refuse to study in detail the questions of the organization of science. For many reasons. Among them there are no specialists in this matter. Moreover, science is an intricate thing, standard solutions like the creation of joint-stock companies from scientific institutions or the conversion of institutes to leasing are not accepted here. Since fixed patterns are not accepted here, it is necessary to think about each specific case. But you will not include this in programs. Therefore, their authors are somewhat suspicious of the settlement of questions of science and the formulation of science and technology policy. Although the collapse of precisely this sphere threatens us in the future with complete impoverishment.

Computer Exposition Raises Intellectual Property Issues

917A0199A Moscow RADIKAL in Russian No 28, 24 Jul 91 pp 1, 5

[Article by Leonid Zavarskiy: "A Computer Melodrama"—first paragraph is RADIKAL introduction]

[Text] The Second International Exhibition of Personal Computers, Computer Networks, and Application Programming, PC World Forum, was held at the Exhibition of USSR National Economic Achievements. Within the framework of the exhibition the International Conference on Software was also held.

Aleksandr Pushkin was convinced that "genius is the friend of paradoxes." At present the friends, as is evident, have begun to quarrel. In any case, in the obvious paradox—the innumerably large number of computer exhibitions and the ruins, in which the state program of computerization lies—there is nothing of genius, only something strangely absurd.

However, it is pointless and unjust to reproach the state with the failure of just another program. Indeed, the state has no time now for operetta methods of the discussion and adoption of all kinds of decorative programs, when it cannot implement even the primary program for itself—the saving of the system. Therefore, the computerization of the country has to a certain extent been allowed to drift, while exhibitions, also to a certain extent, exist regardless of this drift.

The Soviet-American joint venture Informational Computer Enterprise, the American multinational information and publishing corporation International Data Group, Mosbiznesbank, the Exhibition of USSR National Economic Achievements, the USSR State Committee for Science and Technology, the USSR Ministry of Communications, and the USSR Ministry of Information and the Press organized the exhibition that is being reviewed. They did not skimp on scenery and the fitting out of the stage—20 firms from 10 countries received 9,000 meters of display area, which was designed in conformity with the ambitions of the exhibitors, among whom IBM, Microsoft, Polaroid, Quad Micro Systems, Siemens-Nixdorf, Hyundai, Seagate, Nantucket, and others stood out. The Soviet participants in the exhibition by tradition were superior in number—70 organizations from the Schetmash and Glavinformtsentr state enterprises to the Dialog and ParaGraf joint ventures, the ROST Center of Scientific and Technical Creativity of Youth, the Intellektualnyye tekhnologii Scientific Center, and so on, up to cooperatives like Informatika or TOR.

It is unnecessary, apparently, to tell about what was displayed at the stands of western and Asian firms—we have seen a lot of everything of theirs as it is. I wanted to say a lot about the exhibits of the Soviet section, but all the time there came to my mind a phrase of Fominishna from Ostrovskiy's comedy "The Bankrupt, or Among Friends One Always Comes to Terms": "Of course, we are not the masters, foolish small fry, but in us there is also a soul, not steam!"

Alas, over the last few decades we have lost not only the soul, but even the steam, so that, as another heroine of the same comedy said, "consequently there is also no need to prattle."

But there was something to listen to. For example, at the press conference before the opening of the exhibition our specialists and managers were commendably frank, without promising anyone any more mountains of domestically made computers, but using real and specific figures. For this year a balance between 450,000 purchased personal computers and the same number of independently produced ones was planned. The purchases will be made in full, but domestic production will not be above 100,000-150,000. To the question of journalists, will they have their day, that is, a special computer, which it is possible to take with you like a dictaphone on a business trip, as all western colleagues do, a response of silent melancholy followed—only one of the enterprises of Minsk plans to begin the production of notebook computers. They will be without a guarantee of quality, but with a guarantee of a high cost, for even the superprimitive Mikrosha school computer now costs 10,000-15,000 rubles. No one uttered a word about the participation of enterprises that are being converted in the production of computers—they understood that this commodity, in contrast to pans and garden tools, is beyond the powers of the demobilized defense industry.

Robert Danwell, a member of the board of directors of the IBM Corporation, in an interview for RADIKAL said that the world computer community is very worried that the consideration of the draft of the USSR law on intellectual property has been postponed to the fall. Computer piracy is prevalent to no less a degree than video piracy, and no one can guarantee that sanctions will not follow, as happened at the regular Moscow film festival. IBM is opposed to the solution of the problem by force, but no one will be able to answer for the partners.

Since Herman Hollerite sold the first tabulator in Russia in 1887, IBM has been concerned about expanding trade and cooperation, but normal operations in the USSR, for example, participation in the computerization of 40 schools, became possible only as of last year with the lifting of several Cocom restrictions. However, the shortage of currency is limiting the extents of cooperation. Danwell greeted skeptically the hypothesis that if the production of some components for computers for the purpose of their foreign deliveries in exchange for finished items is organized in the USSR, the urgency of the currency problem will to some degree be resolved. "You will not be able to guarantee us the required level of quality, while we will not be able to guarantee effective control over it in the production process," he said.

The International Conference on Software, which was held within the framework of the exhibition, served as a place for the more detailed familiarization of foreign participants in the exhibition with the changes in Soviet economic policy and of Soviet participants with the new trends of the policy of the Cocom member countries and with the general trends on the world market of computers. The trends are most simple—in the West preference is be given to computers no longer of "yellow" assembly at Asian affiliates of well-known firms, but to "home" assembly, the practice of deliveries of personal computers to the client "turnkey" is expanding, while the saturation of the computer market is contributing to the decrease of prices.

As for the changes in our policy, here the foreign guests were faced with the increase of the customs duties on the importing of computers as a trend in response to the decrease of their cost in the world, as well as with the verbal outpourings of some of our speakers, several of whom asserted that it is unpatriotic to buy western computers and this leads to dependence on deliveries of spare parts. As an example the speakers cited machine building, where these deliveries make up nearly all the imports. They also condemned the change of the structure of imports—from hardware to software, citing the fact that our programmers are not the worst, but the best in the world. In a somewhat melodramatic tone the hope was expressed that the state would not give up computerization to the "private trader" and would regulate it. Here it is the right time to return to the problem of the "drift," which was spoken about at first. RADIKAL wrote in No 27 about the fact that computerization henceforth, apparently, will take not the state, but the natural path.

State regulation is necessary here, though not fiscal, but organizational regulation. Then computer exhibitions will exist not in isolation from the process of computerization, but in its course and will have the positive effect like all similar exhibitions in the world.

New Newspaper Announced: 'Computer World USSR'

917A0216A Moscow RADIKAL in Russian No 29, 31 Jul 91 p 1

[Article by V.P. under the rubric "A Fact for RADIKAL": "'Raisins From 150 Long Loaves'"]

[Text] The first (more precisely, the null) issue of the newspaper KOMPYUTERUORLD-SSSR has appeared. As Grigoriy Gromov, editor in chief of the new 16-page newspaper, stated, this will be the first newspaper in the USSR for entrepreneurs and specialists, who work in the area of information technology.

"The first newspaper in the world with a similar direction," Gromov said, "appeared a quarter century ago in the United States and was simply called COMPUTERWORLD. Today the IDG information corporation, which grew from this seed, publishes 150 titles of periodicals on information technologies in practically all the developed countries of the world. In point of fact, until today only the Soviet Union did not have its own COMPUTERWORLD. The appearance of our newspaper signifies, thus, that we have at last become a part, even though without a firm position, of the world computer community."

The editorial board of KOMPYUTERUORLD-SSSR proposes by the end of this year to ensure the weekly publication of the newspaper. Approximately half of the reports of each issue will be translated—readers will be able to obtain the most interesting information which is contained in the latest issues of all 150 newspapers of IDG. As Gromov figuratively expressed it, the editorial board will pick out "the raisins simultaneously from 150 large loaves."

The second half of the reports will be devoted to news and problems of the domestic "Computerworld." Gromov presumes that he will have no problems with obtaining domestic articles, inasmuch as any publication in KOMPYUTERUORLD-SSSR automatically becomes the property of IDG and it can be reprinted in any of its 150 publications. "It is impossible to think up," Gromov believes, "more powerful and cheaper advertising for an author and his firm."

As for the content of the null issue of KOMPYUTERUORLD-SSSR, in our opinion, it is possible to congratulate the editorial board on the achievement—it is interesting. It picked out entirely high-quality "raisins from 150 long loaves." Moreover, the domestic raisins also proved to be no worse than the domestic raisins. Without threatening a survey of the issue, which is even in any way complete, let us tell all the same about one of the domestic reports.

It is a matter in it of a well-advertised version of a text editor, which is famous in the West and which by the efforts of a well-known Soviet firm was Russified. It turned out to be Russified, in the opinion of the editorial board, wretchedly. The ordeals of journalists, who invested in the program a large sum and are trying to make it work—now on their own, now with the help of representatives of the vendor—are described in the article not without bitter humor. In conclusion KOMPYUTERUORLD-SSSR came forth with the initiative to establish in the country the Union for the Protection of the Interests of Software Users. All right, it is possible to congratulate ourselves on the progress—not only the availability of a product, but also its quality are beginning to interest us.